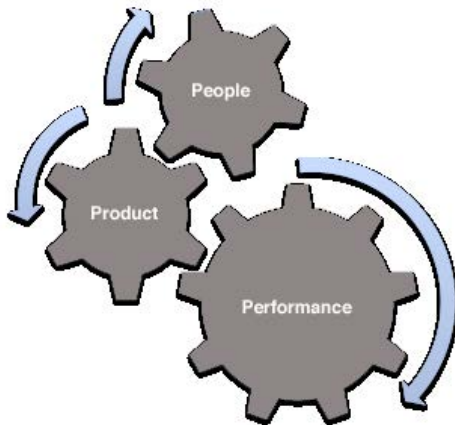




# *SERVICE MANUAL*

81875  
Steamroller 3  
Lint Conditioner  
(With 81876 Control)

U.S. Patent Number 7,591,048



**SAMUEL JACKSON**

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*We appreciate your business and hope you enjoy your  
Samuel Jackson Steamroller 3 Lint Conditioner System*

This manual contains information on the installation, startup, and operation of your Steamroller 3 system. Included are sections on:

- Assembly and Installation
- Electrical Installation
- Startup and Adjustment
- Maintenance and Troubleshooting
- List of Suggested Spare Parts
- List of Major Components

**IS STARTUP ASSISTANCE PROVIDED?**

Startup and inspection service is provided in most locations for your new Samuel Jackson Steamroller 3 Lint Conditioner System free of charge by Samuel Jackson, Inc. Please contact us to make arrangements or for questions regarding startup services.

In the future when you require service, technical support, or parts please contact us by phone, fax, or the internet. Our engineers and service people are available to assist you in obtaining the best performance from your Samuel Jackson, Inc. products.

*Again, thanks for choosing a Samuel Jackson Steamroller 3 Lint Conditioner System*

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## Warning



### **READ THIS CAREFULLY BEFORE OPERATING THIS SAMUEL JACKSON PRODUCT!**

The Samuel Jackson product line consists of sophisticated technology capable of greatly enhancing a gin's productivity and efficiency. Improper use of these products could adversely affect those very same factors and potentially cause injury to gin personnel. For this reason, we include an extensive manual with every product. These manuals outline the proper and safe operating procedure for their respective product. **Do not operate any Samuel Jackson product without first reading the entire manual and all accompanying information.**

Sometimes there are updates added at the customer's discretion to products already in the field. We always refer customers to our website, [www.samjackson.com](http://www.samjackson.com) for the latest product information. The latest manual can be downloaded or printed from the website free of charge. In addition to printed literature, the website includes training videos on several popular products. When available, these videos are highly recommended for viewing before operating a respective product. If you do not have internet access, give us a call and we will gladly send you the latest product information.

Please consult the gin safety administrator to help identify all hazards and become knowledgeable regarding all necessary personal protective equipment prior to any service work being performed on the machines. This is particularly important during the installation phase. Safe access must be available at all times before service is started.

***DANGER: Please read and understand all the warnings below before operating or maintaining a Samuel Jackson product. If you do not understand, call Samuel Jackson at 806-795-5218 before proceeding. Failure to do so could result in injury or even death. (Si usted no entiende, llame a Samuel Jackson al +1-806-795-5218 antes de proceder. La falta de hacerlo podría causar lesión o muerte.)***

#### **Electrical.**

Most Samuel Jackson products use supply voltage between 110- and 480-volts AC. These levels are considered high voltage and are extremely dangerous.

#### **Access Doors.**

Samuel Jackson products have access doors for added convenience of product maintenance. Access doors must not be opened while the equipment is in operation. Access doors should also remain closed while any connected equipment such as a fan or conveyor is in operation.

#### **Moving Parts.**

Many Samuel Jackson products have moving or rotating parts. These parts could form pinch points or grab loose clothing or jewelry. Do not reach across or into any product while in operation.

**Do not work on any Samuel Jackson product without first following OSHA Lockout/Tagout procedures. Confirmation by a licensed electrician that there is no electricity present is highly recommended. We recommend using a Samuel Jackson Authorized Technician for all work Samuel Jackson products. Additional safety information is located throughout this manual and should be read carefully before operating this Samuel Jackson product. If you have any questions about how to properly operate a Samuel Jackson product, please call +1-806-795-5218 before proceeding.**

## **How does the Steamroller 3 work?**

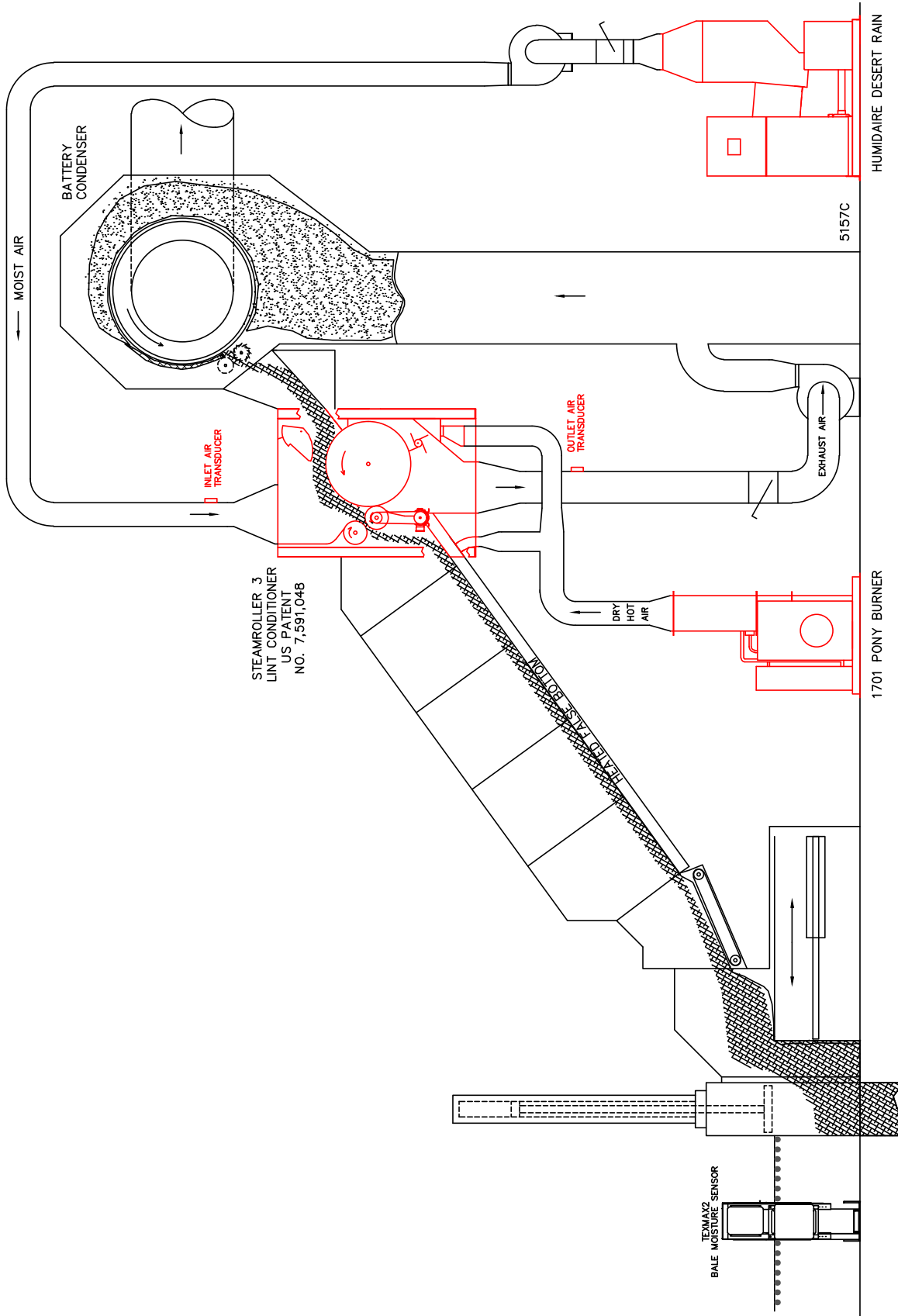
The Steamroller 3 is positioned between the battery condenser and the lint slide. A typical layout view is shown on the next page. After the cotton comes out of the battery condenser, it is fed into the Steamroller by a large, rotating perforated screen drum. The cotton enters the Steamroller on top of the rotating perforated drum in an “overshot” fashion. Moist air from a Humidaire Unit enters the plenum chamber at the top of the Steamroller. This moist air passes down through the batt of cotton. All the moist air is forced evenly through the batt, resulting in a uniformly moisturized batt of cotton. Two rollers doff the cotton off the perforated screen drum and compress the cotton into a thin batt of conditioned cotton as it exits the Steamroller. The used air from this process is evacuated from the bottom of the Steamroller and typically added to the air in the lint flue riser.

Seals at the entrance and exit of the Steamroller reduce cold air leakage. With little cold air leakage, the temperature inside the Steamroller remains the same as the temperature of the moist air. The result is less condensation and fewer problems associated with condensation.

Due to the ability to add high amounts of moisture, the moist air generator must have fast-responding, but stable temperature control. For this reason, every Steamroller 3 Lint Conditioning System uses a PLC-controlled Samuel Jackson Humidaire Unit to generate moist air. Using this Humidaire Unit is a key element in achieving consistent moisture levels.

Each gin has a different layout, and each gin manager has different concerns. The Steamroller System is not a one size fits all solution. To address these differences, every system is carefully designed to meet the requirements of each installation.

# Steamroller 3 Diagram





## **Startup & Adjustments**

A Samuel Jackson technician will normally commission the new Steamroller system. The following adjustments will be made at that time in the following order. It may become necessary for the gin personnel to adjust from time to time using these same guidelines.

### ***Moist Air Volume***

- Start moist air fan (No. 30 size centrifugal fan recommended, 1200 fan RPM, 10 HP motor). Start Steamroller exhaust air fan (No. 30 centrifugal fan recommended, 1900 fan RPM, 15 HP motor). Verify that motor amperages are okay.
- Adjust moist air volume for 2200 to 2500 CFM using the slide gate valve or adjusting the Moist Air Fan Setpoint on the King Mesa or Desert Rain. For 12-inch diameter pipe, Velocity Pressure ( $V_p$ ) should measure 0.5 to 0.6 inches water column (inches w.c.).

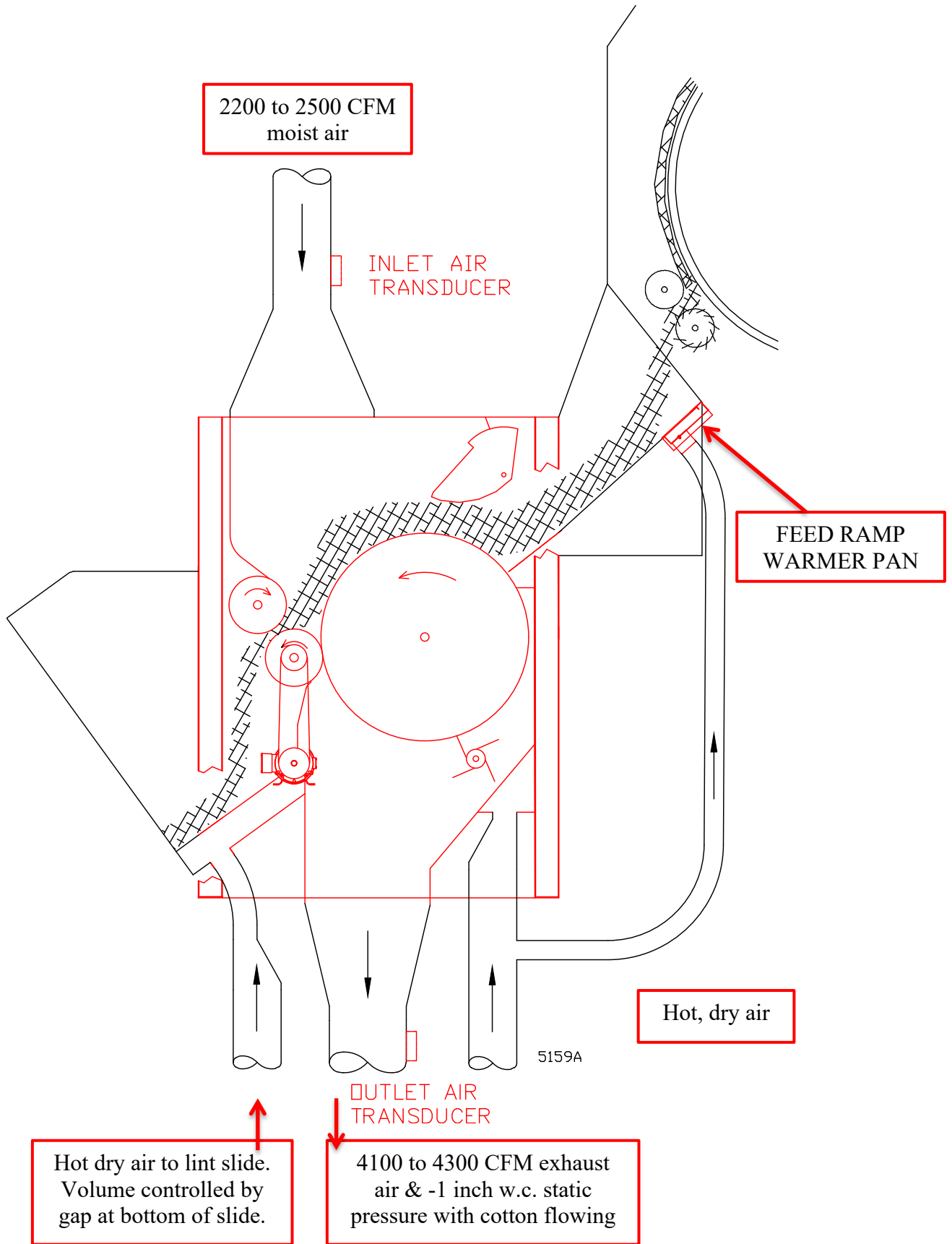
### ***Steamroller Exhaust Air Volume***

- If the Moist Air Fan is using a VFD the exhaust air should also have a VFD.
- With both fans running, adjust exhaust air volume from Steamroller to 4100 to 4300 CFM with the slide gate valve in the 16-diameter line, or Pull Fan Setpoint on the Steamroller Control Screen if exhaust fan VFD is installed. For 16-inch diameter pipe,  $V_p$  should be 0.55 to 0.6 inches w.c.
- Recheck moist air volumes and fine tune slide gate valve adjustments.
- Mark valve positions and pin slide gates in place.

### ***Dry Hot Air Volume***

An auxiliary heater should be used as a source of dry hot air to keep the lint slide and feed ramp warm and to warm the sides of the Steamroller. Set the total combined hot air volume for about 1,500 CFM and the setpoint temperature for 180 degrees F. Measure the velocity of the air when the burner is off.

- Adjust slide gate on air entry to Feed Ramp Warmer Pan so that some hot air is coming out of louver on top of Feed Ramp. This small amount of air keeps the Feed Ramp warm and helps convey the cotton down the ramp into the Steamroller. Further adjustment may be required when cotton is present. The air should not be so great as to disturb the batt.
- Adjust slide on bottom of false bottom of lint slide where a little of the dry hot air can escape keeping air flowing through the false bottom to warm the slide. Normally, a gap of 3/8 inch across the width of the slide is sufficient.

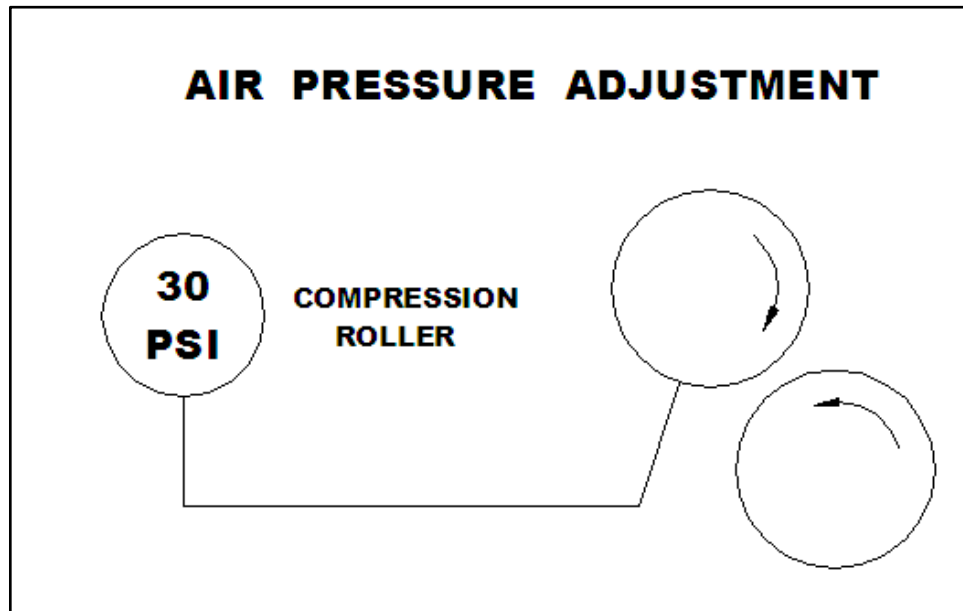


### ***Air Cylinder Pressure Adjustments***

Two Air Cylinders are located under the link arms supporting the Compression Roller. The cylinders exert a constant upward force on the link arms to control squeezing action on the lint batt passing between the compression and doffer rollers. Maintaining proper air pressure to these Air Cylinders is important. Adjust the PRECISION AIR REGULATOR on the PNEUMATIC CONTROL PANEL to the following pressure:

- 30 psi for two cylinders under the Compression Roller

**For best air pressure adjustment, back regulator screw fully out dropping the pressure to 0 psi before turning in for final air pressure. Tighten locking nut on regulator after final adjustment.**

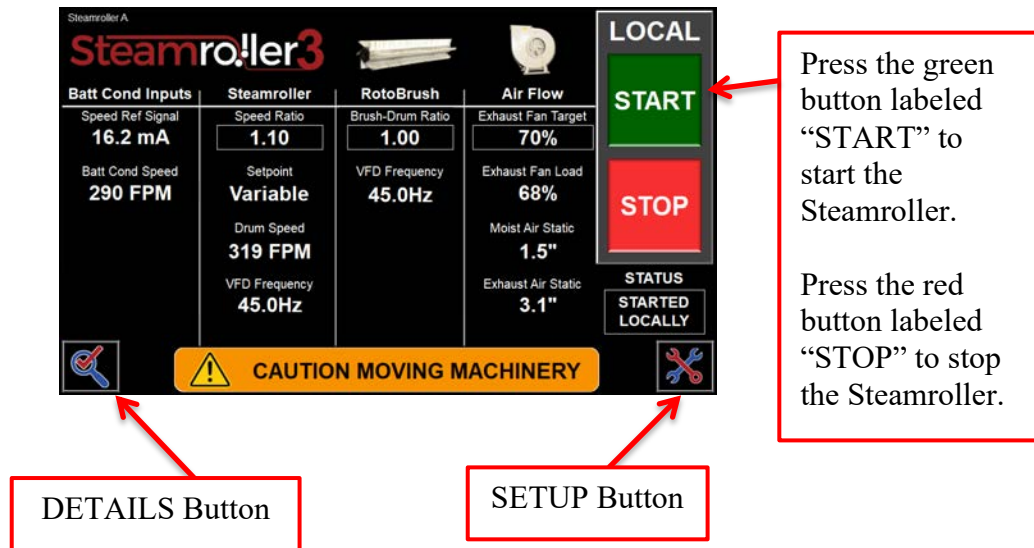


## 81876 Steamroller 3 Control

The Steamroller control uses a Color Touch Panel mounted in the control cabinet door for the operator interface for control setup and troubleshooting. Normal start/stop operation of the Steamroller is done with a remote signal from the main gin console.

For Moisture Mirror 3X, 4X, and Spectrum users, remote access is also available from the Moisture Mirror screen at the main gin console. Communication to the optional Moisture Mirror is provided with CAT5 cable to network connections.

The home screen is shown below.



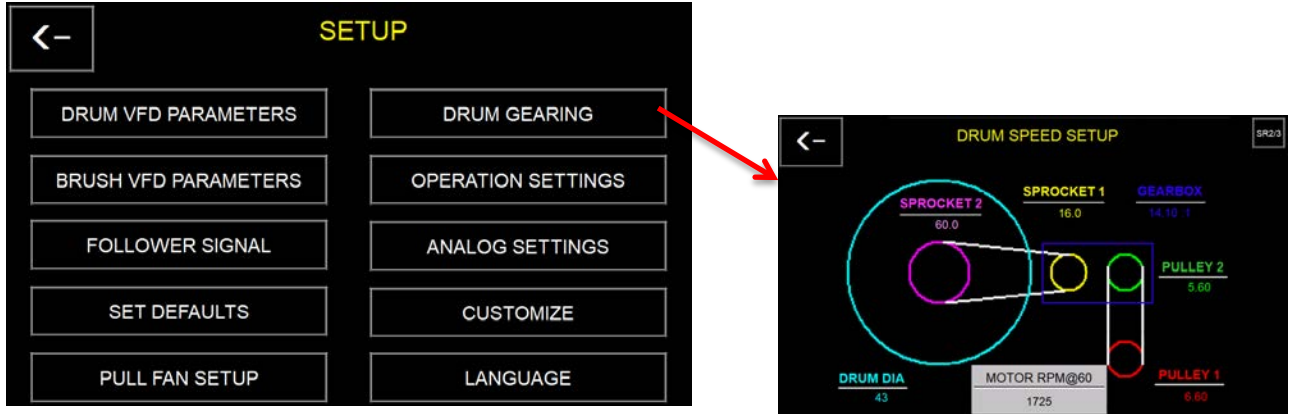
### ***Check Drive Rotation***

- Check for proper 3 phase voltage to Steamroller power disconnect at the 81876 Steamroller Control Cabinet.
- Check that all personnel and tools are clear of the Steamroller. Start Steamroller from the Color Touch Panel at the control cabinet by pressing the START on the home screen. **Immediately** check Steamroller rotation. If rotation is wrong, reverse two of the 3 phase wires between the Variable Frequency Drive VFD and motor. Reversing 3 phase wires before the VFD will have no effect.



## Setup

With the Steamroller off, press the SETUP wrench button. The default password is 1234. The SETUP screen will be shown. Now press the DRUM GEARING button and the DRUM SPEED SETUP screen will appear with the default settings for the Steamroller 3 as shown here.



Press the ← button to go back to the SETUP screen.

## Setting Speed Control Method

There are two methods available for controlling the surface speed of the Steamroller Screen Drum. The Steamroller will either run at a constant speed or will follow the speed changes of the battery condenser. The Screen Drum surface speed must be set 3 to 5% faster than the surface speed of the battery condenser screen drum for good batt drafting action. Press the OPERATION SETTINGS button on the SETUP screen.

The 'OPERATION SETTINGS' screen has a back arrow in the top left. It displays several settings: CONDENSER TYPE (VARIABLE SPEED), CONDENSER SPEED (FOLLOWER SIGNAL SETUP), ROTARY BRUSH (BRUSH INSTALLED), DRUM-CONDENSER (1.10), BRUSH-DRUM (1.00), CURRENT STEAMROLLER TARGET (319 FPM), and CURRENT CONDENSER SPEED (290 FPM). Red arrows point from callout boxes to these settings.

Press this button area to toggle between “FIXED SPEED” and “VARIABLE SPEED”.

For “VARIABLE SPEED” press here to setup the follower signal.  
For “FIXED SPEED”, measure the surface speed of the condenser drum and key in the speed in feet per minute (fpm) here.

Press this button area to toggle between “BRUSH INSTALLED” and “BRUSH NOT INSTALLED”  
For “BRUSH INSTALLED” use DRUM-BRUSH 1.00

1.05 is a good speed ratio to start with for 5% faster speed.

If the battery condenser does not change speed, select FIXED SPEED (default). Select VARIABLE SPEED when the battery condenser uses a variable frequency drive to change speed. For the VARIABLE SPEED control method to work, the drive must provide a follower speed control signal for the Steamroller control. Refer to the *External Electrical Connections* diagram in this manual for acceptable mA and VDC follower speed control signals.



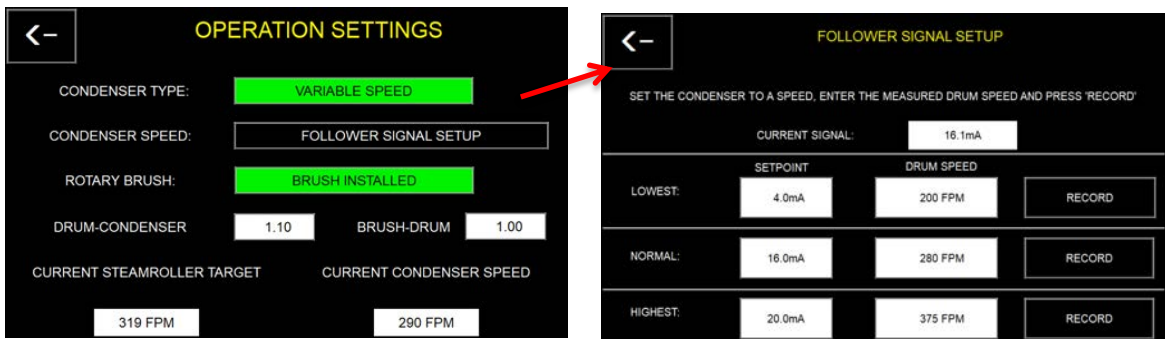
*Condenser drum surface speeds should be kept between 250 and 425 feet per minute for maximum Steamroller performance. Measure the condenser drum surface speed with a surface wheel on your tachometer.*



A digital tachometer with a surface wheel provides an easy way to measure surface speed in feet per minute.

When selecting VARIABLE SPEED for CONDENSER TYPE, the following screen will appear. Press FOLLOWER SIGNAL SETUP button to show the screen for establishing the speed tracking trend for variable speed control.

Run the condenser at the lowest ginning speed setting. Measure the condenser drum surface speed and key this in for DRUM SPEED for lowest setting. The converted 4-20mA VDC signal measured from the condenser variable frequency drive will be shown. Press the RECORD button to record the signal and drum speed. The RECORD button will momentarily turn green. Repeat these steps for the normal (midrange) and high ginning speeds.



Press the ← button until the SETUP screen is shown.

The rest of the SETUP screen choices are described below.

### ***VFD PARAMETERS***

The custom parameters for the GS4 series VFD are accessed and written to the Variable Frequency Drive VFD here. These settings are unique for the Samuel Jackson Part No. 26870 VFD's. Consult with the Samuel Jackson factory before making any changes to the default drive parameters.

### ***SET DEFAULTS***

Resetting factory default parameters for both the PLC and the VFD are accessible here.

### ***PULL FAN SETUP (Optional)***

Maintaining a constant suction on the exhaust of the Steamroller 3 is desirable for optimal Steamroller performance. The Steamroller control can monitor the static pressure in the pipe directly after the Steamroller exhaust outlet. The control provides a 4-20mA VDC signal to an optional VFD on the exhaust air fan motor to automatically control the fan's speed maintaining the desired air volume.

**PULL FAN CONTROL**

**AUTOMATIC**

STEP SIZE	DEADBAND
5	2.00

STEP TIME	SETPOINT	FLA
0.1s	70%	40.00

Set the Pull Fan Load Set Point.  
Typically around 80%

Set Full Load Amps of the fan motor here.

### ***CUSTOMIZE***

A unique password can be set here. The password is a number between 0 and 9999. The default is 1234.

A unique name for the Steamroller can be entered here. If the control panel is connected to a Moisture Mirror 3X, 4X, or Spectrum, this name will be shown on the Mirror network.

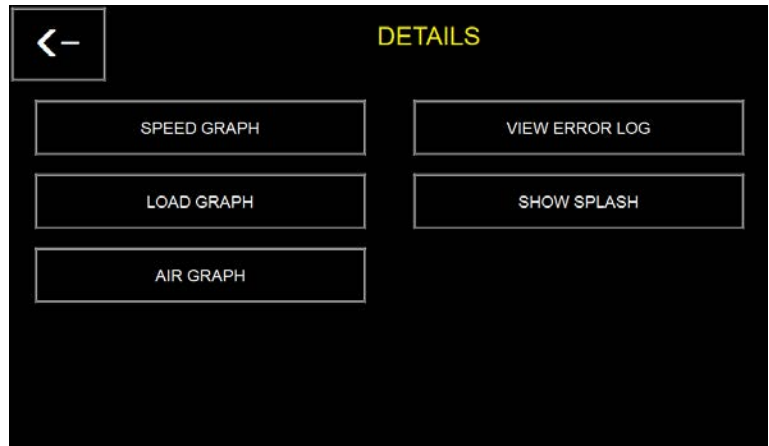
The time and date are set here. The hour is shown in 24-hour format. The time and date are used to time and date stamp when an ERROR occurs.

## LANGUAGE

You can select the Touch Screen language here.

## DETAILS button

On the home screen, press the DETAILS magnifying glass button. The DETAILS screen shown below will appear. The DETAILS are often used to help troubleshoot problems. Press the home picture button to go to the home screen.

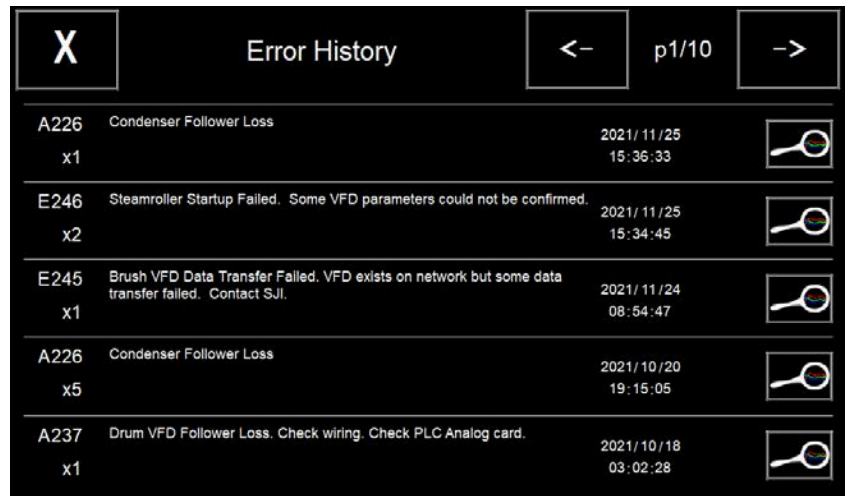


**SPEED GRAPH** shows the operating hertz (HZ) for the Steamroller over time. The HZ represents speed.

**LOAD GRAPH** shows the load of the Steamroller motor over time.

**AIR GRAPH** shows the static pressure of the exhaust air pulling on the Steamroller if the PULL FAN SETUP option is in place.

**VIEW ERROR LOG** shows the last 50 errors. A typical ERROR log is shown below. Press the arrow buttons to maneuver through the logs. Press the X button to go to exit the log.



X		Error History	<-	p1/10	->
A226	Condenser Follower Loss	2021/ 11/25			
x1		15:36:33			
E246	Steamroller Startup Failed. Some VFD parameters could not be confirmed.	2021/ 11/25			
x2		15:34:45			
E245	Brush VFD Data Transfer Failed. VFD exists on network but some data transfer failed. Contact SJI.	2021/ 11/24			
x1		08:54:47			
A226	Condenser Follower Loss	2021/ 10/20			
x5		19:15:05			
A237	Drum VFD Follower Loss. Check wiring. Check PLC Analog card.	2021/ 10/18			
x1		03:02:28			

**SHOW SPLASH** momentarily shows the splash screen with the software version for the PLC and Color Touch Panel.

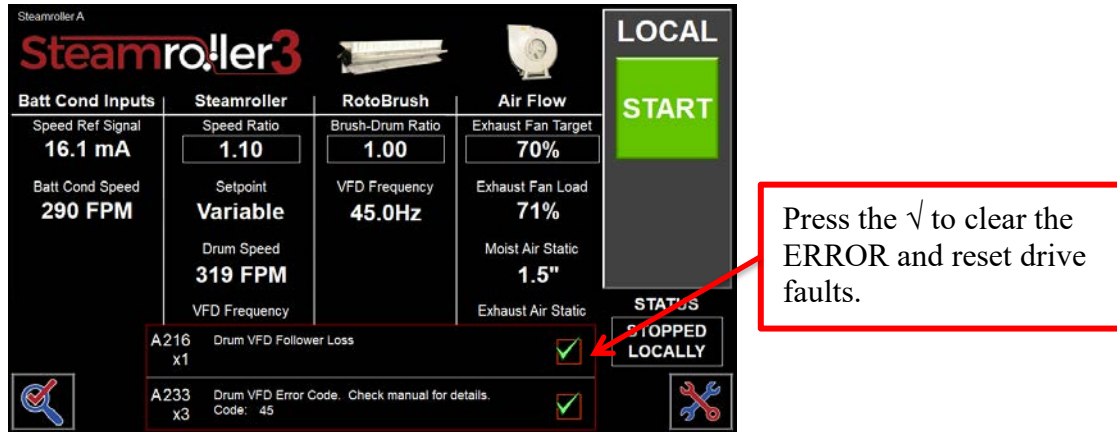
## Analog Communications

The Steamroller 3 uses analog communications between the PLC and drive. This is in addition to Modbus communication for specific drive information useful for troubleshooting.



## **ERROR List & Explanations**

When an ERROR occurs with either the Variable Frequency Drive VFD or Programmable Logic Control PLC, the Color Touch Panel will display the ERROR. Below is an example of what an ERROR screen will look like.



For some ERRORS an abbreviated cause and possible remedy are also shown. Additional information for the possible causes of a VFD fault can be found in the GS4 VFD manual. The fault will also be displayed on the drive's LCD display. Pressing the ✓ button will clear the ERROR from the screen and power cycle the drive to clear a drive fault.

### **ERROR 226**

PLC Follower Loss. In OPERATION SETTINGS, if Condenser Type is set to VARIABLE SPEED, the PLC expects to receive an analog signal from the battery condenser VFD for following the condenser drum speed. This analog signal is not present.

### **ERROR 231**

Drum VFD failed to start. Check wiring of the Drum VFD run signal and indicator.

### **ERROR 232**

Brush VFD failed to start. Check wiring of the Brush VFD run signal and indicator.

### **ERROR 233**

Drum VFD error. Check code list for appropriate VFD error code.

### **ERROR 234**

Brush VFD error. Check code list for appropriate VFD error code.

### **ERROR 235**

Drum VFD stopped unexpectedly. Check wiring of the Drum VFD run signal and indicator. Check VFD for error code.

## ERROR 236

Brush VFD stopped unexpectedly. Check wiring of the Brush VFD run signal and indicator. Check VFD for error code.

### VFD Error Codes:

Error Codes	0: No Error	40: Motor auto tune error (AuE)
	1: Overcurrent during Accel (ocA)	41: PID Feedback loss (AFE)
	2: Overcurrent during Decel (ocd)	42~47: reserved
	3: Overcurrent during normal speed (ocn)	48: Analog input signal loss (ACE)
	4: Ground Fault (GFF)	49: External Fault (EF)
	5: IGBT short circuit (occ)	50: Emergency Stop (EF1)
	6: Overcurrent during Stop (ocS)	51: Base Block (bb)
	7: Overvoltage during Accel (ovA)	52: Password Error (Pcod)
	8: Overvoltage during Decel (ovd)	53: Software Code lock (ccod)
	9: Overvoltage during normal speed (ovn)	54: PC Command error (CE1)
	10: Overvoltage during Stop (ovS)	55: PC Address error (CE2)
11: Low voltage during Accel (LvA)	56: PC Data error (CE3)	
12: Low voltage during Decel (Lvd)	57: PC Slave error (CE4)	
13: Low voltage during normal speed (Lvn)	58: PC Communication Time Out (CE10)	
14: Low voltage during Stop (LvS)	59: PC Keypad Time out (CP10)	
15: Input phase loss (OrP)	60: Braking Transistor Fault (bf)	
16: IGBT Overheat 1 (oH1)	61: Y-Delta connection Error (ydc)	
17: Cap Overheat 2 (oH2)	62: Decel Energy Backup Error (dEb)	
18: Thermister 1 open (th1o)	63: Over Slip Error (oS�)	
19: Thermister 2 open (th2o)	64: Electromagnet switch error (ryF)	
20: Power Reset Off (PWR)	65~71: reserved	
21: Overload (oL) (150% 1Min, Inverter)	72: STO Loss1 (STL1)	
22: Motor1 Thermal Overload (EoL1)	STO1~SCM1 internal hardware detect error	
23: Motor2 Thermal Overload (EoL2)	73: ES1 Emergency Stop (S1)	
24: Motor Overheat-PTC (oH3)	74: In Fire Mode (Fire)	
25: reserved	75: reserved	
26: Over Torque 1 (ot1)	76: Safety Torque Off function active (STO)	
27: Over Torque 2 (ot2)	77: STO Loss2 (STL2)	
28: Under current (uc)	STO2~SCM2 internal hardware detect error	
29: reserved	78: STO Loss3 (STL3) – STO1~SCM1 and STO2~SCM2 internal hardware detect errors	
30: EEPROM write error (cF1)	79: U Phase Short (Uoc)	
31: EEPROM read error (cF2)	80: V Phase Short (Voc)	
32: reserved	81: W Phase Short (Woc)	
33: U phase current sensor detection error (cd1)	82: U Phase Loss (UPHL)	
34: V phase current sensor detection error (cd2)	83: V Phase Loss (VPHL)	
35: W phase current sensor detection error (cd3)	84: W Phase Loss (WPHL)	
36: CC Hardware Logic error 0 (Hd0)	85~89: reserved	
37: OC Hardware Logic error 1 (Hd1)	90: PLC Force Stop (FStp)	
38: OV Hardware Logic error 2 (Hd2)	91~98: reserved	
39: OCC Hardware Logic error 3 (Hd3)	99: CPU Command error (TRAP)	
	100~110: reserved	
	111: InrCom Time Out (ictE)	

## ERROR 237

Drum VFD follower loss. Check analog signal from PLC to VFD.

## ERROR 238

Brush VFD follower loss. Check analog signal from PLC to VFD.

## ERROR 239

Failed to write to the SD card. Contact SJI.

## ERROR 240

Failed to read the SD card. Contact SJI.

**ERROR 241**

SD card has been ignored. Check SD card is properly installed in PLC or replace SD card.

**ERROR 242**

Drum VFD Communications failure. Contact SJI.

**ERROR 243**

Drum VFD Failure. Some read/write commands failed. Contact SJI.

**ERROR 244**

Brush VFD Communications failure. Contact SJI.

**ERROR 245**

Brush VFD Failure. Some read/write commands failed. Contact SJI.

**ERROR 246**

Some portion of the VFD verification and initialization failed. Contact SJI.

## Cleaning & Maintenance

### **CAUTION**

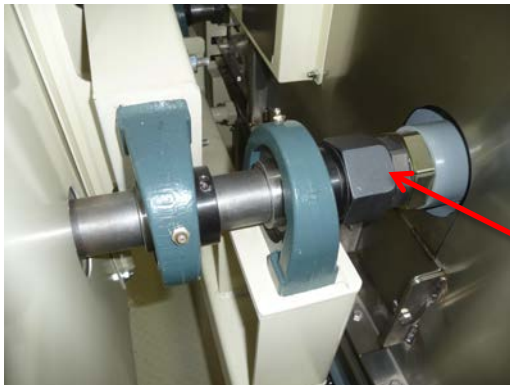
#### Using a Cylinder Block for Safety

Steamroller operators will find it helpful to use the Air Cylinders to lift the Compression Roller up for cleaning and maintenance. ***IT IS EXTREMELY IMPORTANT TO POSITION THE CYLINDER SAFETY BLOCK OVER ONE OF THE EXTENDED CYLINDER RODS FOR SAFETY.*** Two Cylinder Blocks with clip pins are provided. One Cylinder Block in place on one Air Cylinder is sufficient to support the roller.

CYLINDER BLOCK  
WITH CLIP PIN



To maintain maximum performance from the Steamroller System, a cleaning schedule is recommended. Steamrollers operating on stripper harvested cotton normally require more frequent cleaning than Steamrollers operating on picker harvested cotton. Each gin develops its own cleaning schedule based on experience.



#### SHAFT SAVER NUTS

Use wrench on the Shaft Saver Nuts on Drum Shaft when turning drum by hand to prevent wrench damage to shafts.

**DANGER**

**POWER SHOULD BE DISCONNECTED AND LOCKED OUT BEFORE CLEANING OR PERFORMING MAINTENANCE ON STEAMROLLER. STEAMROLLER STARTS AUTOMATICALLY.**

## **Cleaning Screen Drum Surface**

A thin mat of lint (hairing) will eventually form on the screen. Enough of this mat will block air flow and reduce performance. Check in *TROUBLESHOOTING* section for ways to reduce formation of this mat. Clean off with a brush.



***If cleaning of lint matt off Screen Drum is required, do so immediately after shut down. Damp lint is easier to remove from the screen.***

## **Cleaning Screen Drum Inside**

Some of the pin and leaf trash pulled by exhaust air through holes into inside of screen drum will remain inside the drum and build up reducing the flow of exhaust air through screen drum. Periodically open up an end of the screen drum by removing one of the drum end covers and clean out.



**DRUM END COVER  
shown removed for  
access to inside of  
SCREEN DRUM.**

## Cleaning Drum Warmer Flashing Area

The DRUM WARMER FLASHING provides a seal between the chamber for dry hot air and the exhaust air. This flashing directs the dry hot air through the screen just before the screen is exposed to the incoming batt of cotton. Drying and warming the screen helps reduce hairing of lint on the screen.



Remove this panel  
under the feed apron  
to expose the DRUM  
WARMER

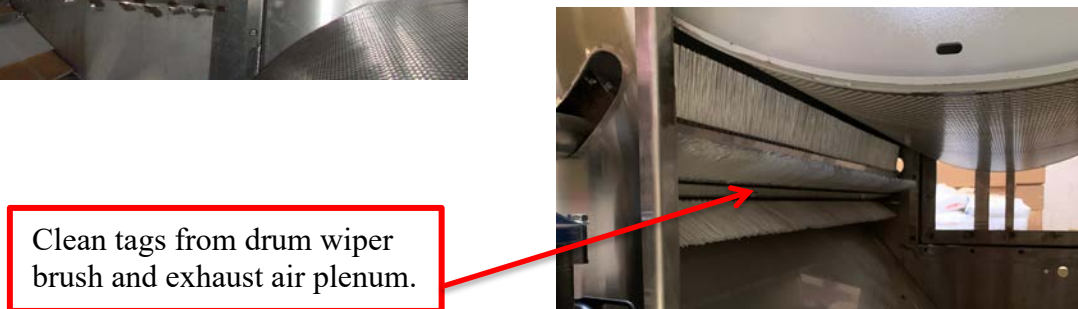
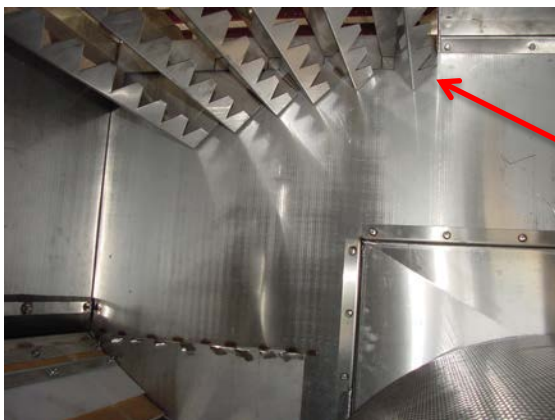
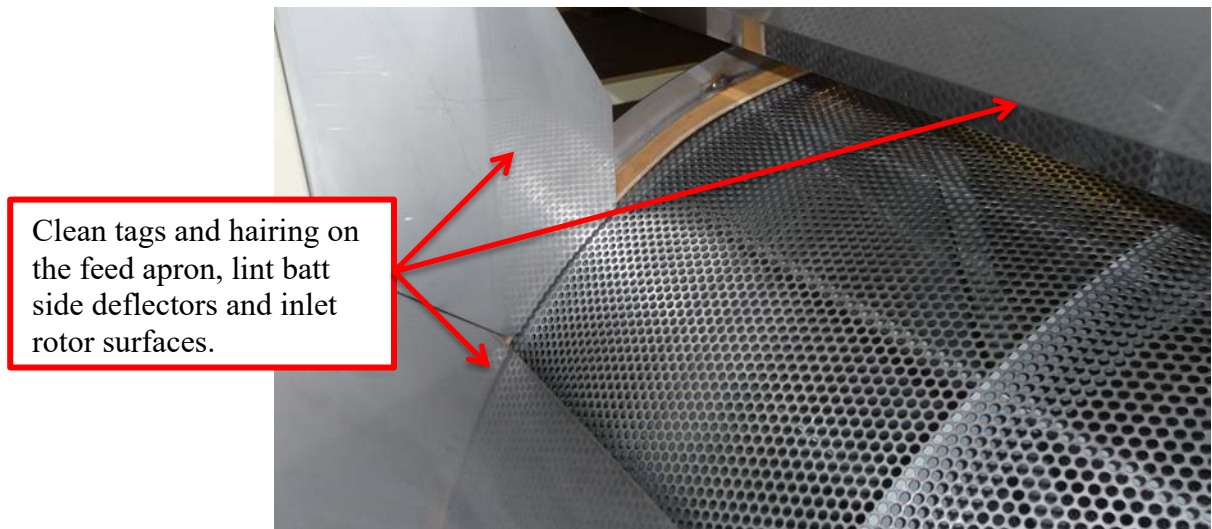
Check for cotton and trash  
buildup here. Also check  
condition of DRUM  
WARMER FLASHING.



## Cleaning Feed Apron and Upper and Lower Plenum Chambers

Clean off tags and hairing that form on the feed apron, lint batt side deflectors and cotton inlet rotor. Keeping tags and hairing off surfaces where the batt flows reduces friction for the batt as it passes through the Steamroller. See *TROUBLESHOOTING* section for suggestions on minimizing hairing buildup in these areas.

Clean out tags that form on the moist air spoilers in the upper plenum chamber and on the drum wiper brush in the lower exhaust air plenum chamber. Reducing the buildup of tags lessens the places for a fire to burn and damage flashings and windows in the event of a lint fire passing through the Steamroller.



## Cleaning Doffing Area Between Screen Drum and Doffer Roller

Wipe lint buildup away from the housing in the doffing area. Keeping the housing in this area warm will reduce lint buildup here. Maintaining the DRUM FLASHINGS and DRUM END WIPER BLOCKS will keep this area cleaner and free from cotton buildup.

Check the doffing area for lint and wad buildup



Check DRUM FLASHINGS for worn or warped flashings in this area.

This pan directs dry hot air along housing in doffing area. Open access panel to check for wads that will block air flow. Hot air exits pan through hole in housing near the access panel.

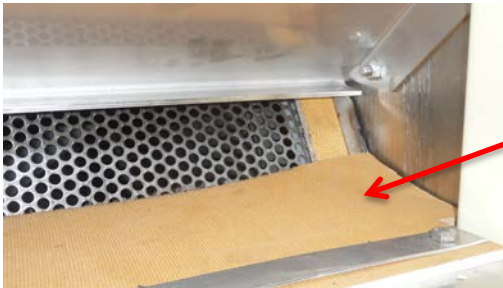




## Drum Flashing Replacement

Right- and left-hand DRUM FLASHING ASSEMBLIES seal the ends of the drum from cotton and air moving along the ends of the drum from upper moist air plenum to lower exhaust plenum. Lint buildup on the ends of the Drum Screen can cause formation of lint wads. Over time, the flashings will become worn and warped and require replacement. A spare set of DRUM FLASHING ASSEMBLIES (Part Numbers 23038C and 23039C) should always be kept on hand for quick replacement.

**Step 1**  
Notched end goes toward inlet side. Feed flashing through window as shown here.



**Step 2**  
Be sure that the DRUM FLASHING goes under the DRUM WARMER FLASHING as shown here.

**Step 3**  
Push flashing down so flashing is in contact with outer ring on Drum Screen. Do not force flashing to rub tightly on drum.



**Step 4**  
Two 3/8 UNC X 1 inch bolts secure the flashing to the housing. Slots in the flashings allow vertical adjustment of flashing to Drum Screen.

## Drum End Wiper Blocks

Periodically check the condition of the DRUM END WIPER BLOCKS. There are two of these blocks positioned on each end of the Screen Drum. The blocks rotate with the drum and help prevent the formation of wads between the ends of the Screen Drum and the housing.

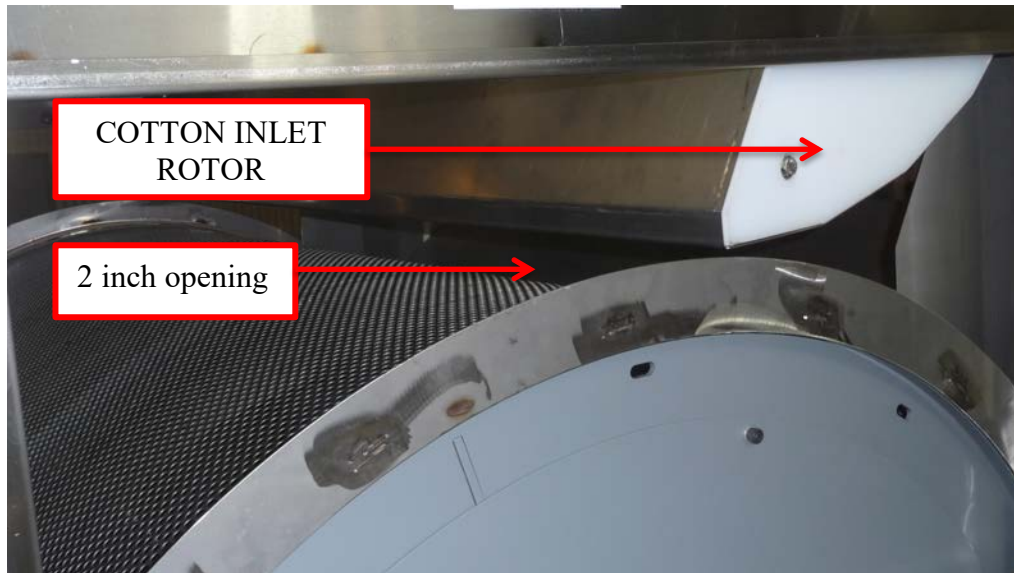


Replace the DRUM END WIPER BLOCKS when the edges are no longer sharp. Observe the order of the metal shims when removing the old blocks.

## Cotton Inlet Rotor Adjustment

Cotton enters the Steamroller 3 under the floating COTTON INLET ROTOR. The cotton batt nudges the tip of the rotor upward to enter the moist air plenum section where moisture is applied to the cotton. Because the moist air is under a slight positive pressure in the moist air plenum, the COTTON INLET ROTOR acts as an air seal allowing cotton in and keeping the moist air in. A set of weights suspended on a cable act as a counterbalance to keep a constant downward pressure of the rotor tip against the cotton regardless of batt thickness.

The opening between the tip of the rotor and the Screen Drum has been adjusted at the factory for about 2 inches. If this opening needs to be adjusted, loosen the weight anchor bracket, and slide the bracket up or down to give the desired opening. Cotton should enter easily under the rotor tip and minimal moist air should leak out.



Slots in Weight Anchor Bracket allow adjustment of rotor tip to screen clearance.

## Drum Rotating Wiper Brush Adjustment and Replacement

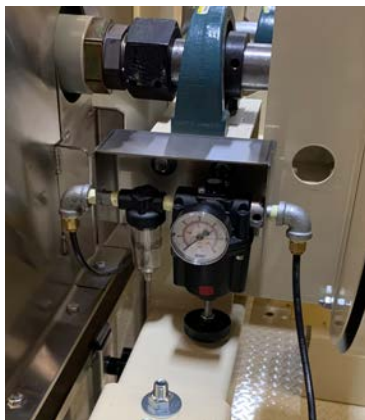
The stiff bristles of the DRUM ROTATING WIPER BRUSH brush the rotating Screen Drum surface to help minimize formation of lint hairing. The brush is located in the exhaust air plenum so lint that is brushed off the drum is swept away in the exhaust air.

Replacement of the WIPER BRUSH is accomplished by loosening the bolts on each of the flights. Two of the flights will have set screws that hold the brush to the stub shafts and should not be removed, but the locking nut will need to be loosened. Once loose the WIPER BRUSH can be slid out of the window and replaced by a new WIPER BRUSH. Tighten all bolts/nuts.



The gearbox on the rotating brush needs to be checked for oil periodically. Use the sight plug to check oil level.

The air pressure should be set to **30 psi** on the motor side and on the opposite side **20 psi**. These are starting values and will require periodic adjustment to maintain contact along the full length of the DRUM ROTATING WIPER BRUSH.



## Doffer Roller Flashing Adjustment and Replacement

Because the exhaust plenum is under negative (suction) pressure, lint exiting the Steamroller can also be pulled into the exhaust plenum. It is critical to adjust the DOFFER ROLLER FLASHING to ride snugly against the Doffer Roller at all times. This minimizes air leakage into the exhaust plenum, keeping it cleaner.

Loosen the exterior bolt, as labled in the diagram below, then turn the tension adjustor to the desired tightness. The tension adjustor rotates the cam shaped pipe to adjust the flashing tension. After tightening (or loosening) the tension adjustor, retighten the exterior bolt to hold the tension adjustor in place.



## Replacing Roller End Washers

When the ROLLER END WASHERS become worn, gaps between the housing and the ends of the rollers will allow formation of lint wads. Removable roller housing panels allow access to the ends of the rollers for washer replacement after bearings and sprockets are removed.



Roller housing panels shown removed allowing access to the ROLLER END WASHERS.

## Screen Drum to Doffer Roller Separation

The separation between the Screen Drum and the Doffer Roller was checked and set at the factory and should require no further adjustment unless the bearings are replaced. Separation is set to about 1/8 inch. Minimal separation (without contact) improves lint doffing. *Any contact between the Screen Drum and the Doffer Roller will result in premature failure of the Screen.*

1/8 inch clearance is ideal between Doffer Roller flights and Screen.



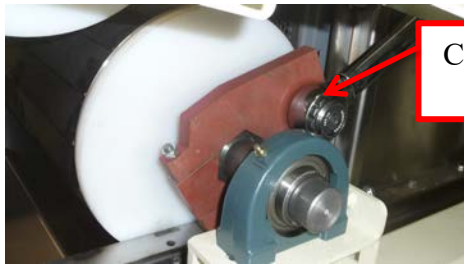
Loosen bearing bolts and use jack screws to adjust clearance.

# Torque Settings - Keyless Bushings, Sprocket Bushings & Sheave Bushings

Shown below are recommended torque settings for keyless shaft bushings, QD sprocket and sheave bushing bolts. These torque settings were used at the factory during Steamroller assembly and adjustment.

## ***IMPORTANT!***

**Tightening the KEYLESS BUSHINGS to the proper torque (3300 in-lb, 275 ft-lb) is extremely important. If shifting of the Screen Drum, Compression Roller or Doffer Roller within the Steamroller housing is required, avoid loosening the Keyless Bushings. It is better to loosen the bearing set collars and shift the shaft through collars for adjustment. Check chain sprockets for chain alignment. A special 2 ¼ inch crowfoot wrench, Part No. 20732, is available from the factory for use in tightening the Keyless Bushings (does not include the torque wrench).**



CROWFOOT WRENCH,  
PART No. 20732

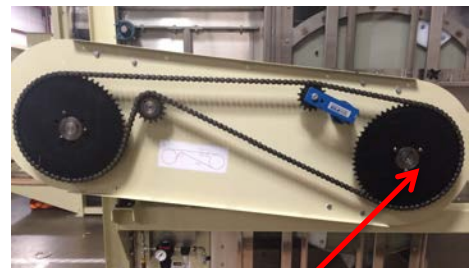


3300 in-lb for  
KEYLESS BUSHING



108 in-lb for SDS  
bushing on SPEED  
REDUCER and  
MOTOR SHEAVES

*Drive guards removed for  
illustration – do not operate  
without guards in place.*



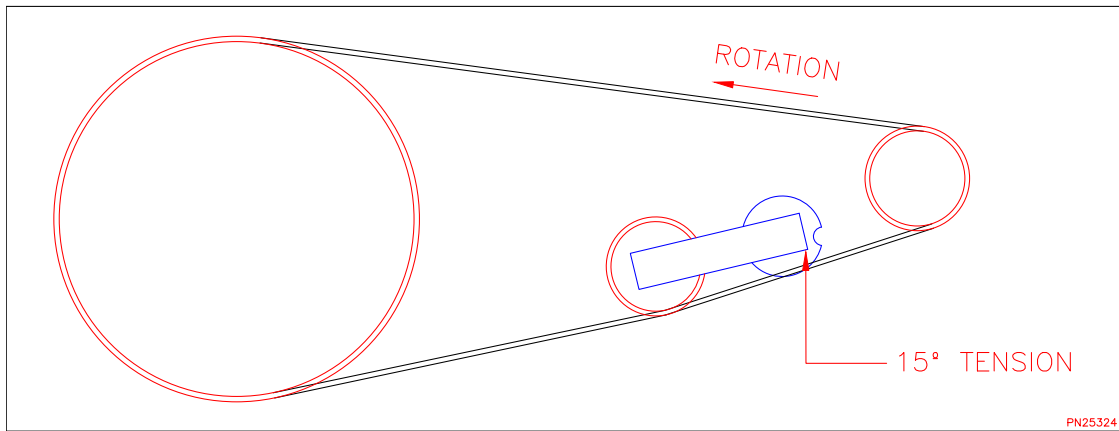
360 in-lb for SF bushing  
on SPROCKET –  
60 TOOTH, NO. 6



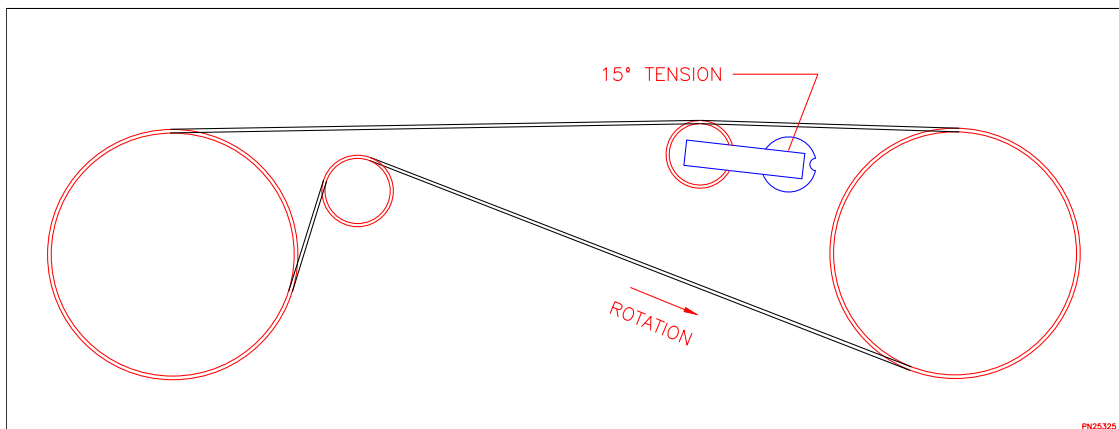
## Chain Routing

For Steamroller 3s the proper chain routing is as follows:

Motor Side:



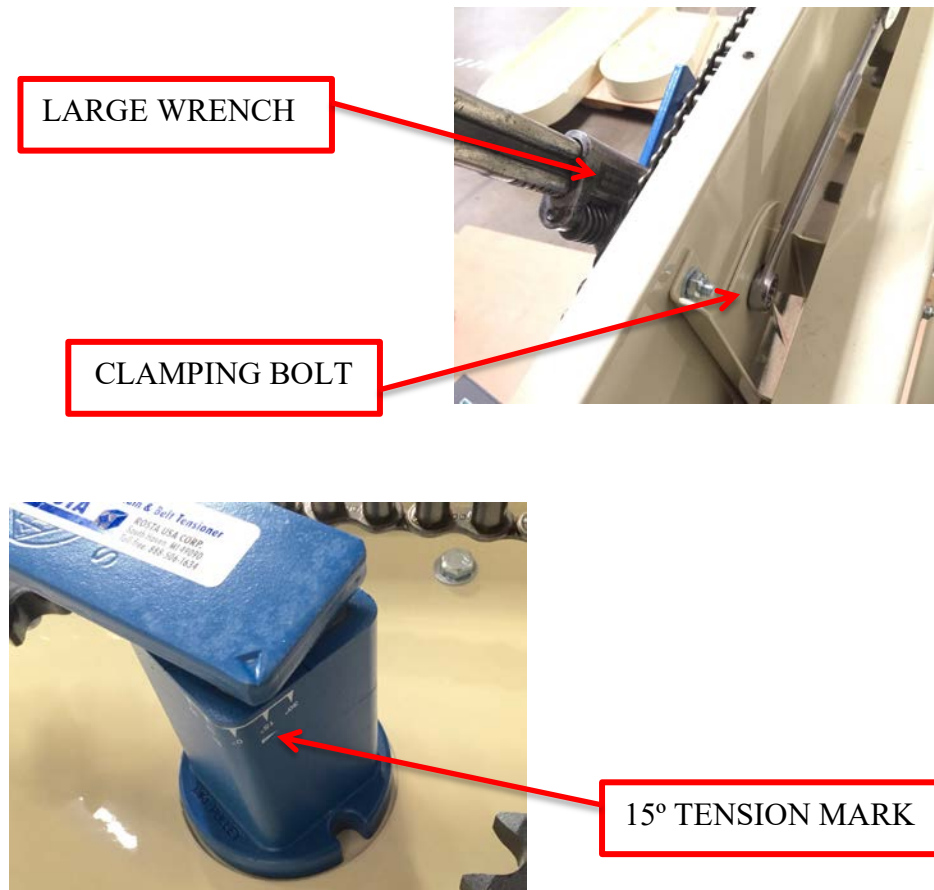
Driven Side:



## Chain Tension

An elastomeric tensioner on each side of the unit maintains proper chain tension. Initial tension is 15° and may require periodic adjustment to maintain proper tension as the chains wear.

To adjust the tension, place a large wrench on the square section on the front of the tensioner and loosen the clamping bolt on the back. Turn the large wrench to set the desired 15° tension and hold in place while tightening up the clamping bolt.

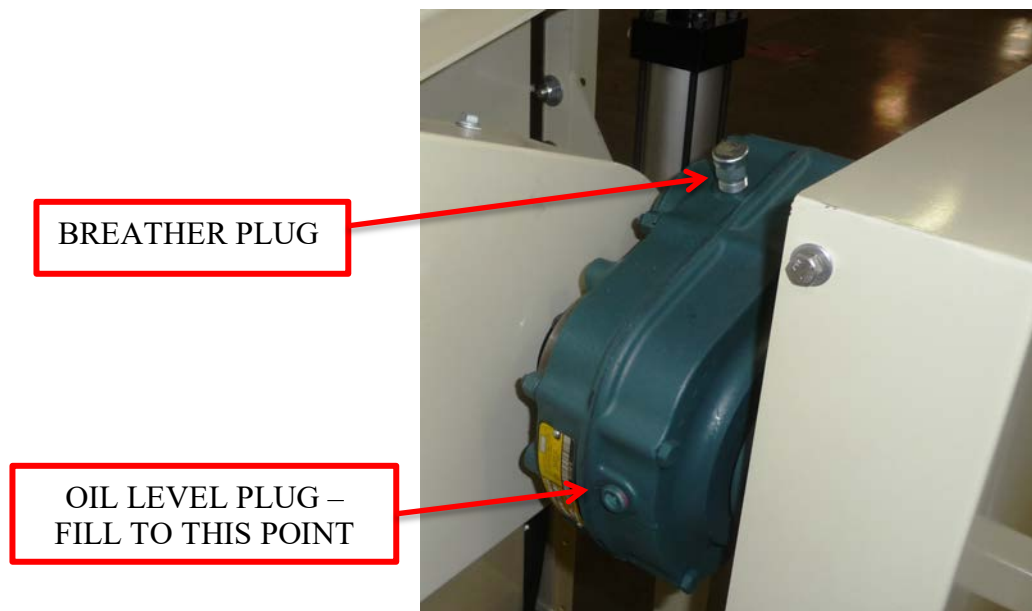


## *Lubrication*

### **Speed Reducer**

Proper lubrication is essential to the performance and life of the Speed Reducer. Proper lubrication consists of:

1. Use of the proper type and viscosity of oil.
2. Maintenance of the correct oil level for the mounting position used.
3. Too much oil will cause overheating and too little will result in gear failure.
4. Drain, flush and refill at the required intervals.



The DODGE Torque-Arm Speed Reducer is filled at the factory with MOBILGEAR 630 oil (Samuel Jackson Part No. 22055). If another type of oil is used, the Speed Reducer should be drained and flushed with kerosene to avoid any compatibility problems between the MOBILGEAR 630 and the new oil. Contact the Samuel Jackson factory for the list of other oil types recommended by DODGE. Oil changes are recommended once a year.

### **Brush Reducer**

The IRONHORSE gear box is filled at the factory with 4.25 fl oz MOBILGEAR 630 oil (Samuel Jackson Part No. 22055). Oil changes are recommended every 2 years.

### **Motor**

Use CHEVRON OIL CO. SRI Number 2 (Samuel Jackson Part No. 20616) for motor bearing lubrication. Lubricate motor bearing every 1000 hours.

### **Bearings**

Use a No. 2 Lithium base grease (Part No. 20616) or equivalent. For a typical Steamroller running 24 hours per day with all shaft speeds under 250 RPM, lubricate every 10 weeks. *Do not over-grease.* A small amount of lubrication at frequent intervals is preferable to a large amount at infrequent intervals.

One quart of oil (Part No. 22055) and one tube of bearing lubricant (Part No. 20616) are supplied with each new Steamroller.

## **Troubleshooting**

Once the Steamroller System is started and adjusted properly, most future problems result from not maintaining a cleaning schedule. Cleaning schedules are unique to each gin and affected by whether the cotton is stripper or picker harvested. Once a cleaning schedule is developed that results in minimum problems, stick with it. Following are some problems that may occur with solutions.

### SYMPTOMS

Cotton batt is pulled apart between condenser and Steamroller. Conditioned cotton batt exiting Steamroller is broken and intermittent.

Cotton batt ribbons (bunches) up between condenser and Steamroller. Eventually, the Steamroller chokes.

Cotton batt will not feed into Steamroller.

### SOLUTIONS

Reduce Steamroller speed ratio. See *Setting Speed Control* section to reduce draft.

Condenser drum may be turning too fast for a good batt of cotton even at full gin capacity. Keep condenser surface speed below 425 feet per minute.

Increase Steamroller speed ratio. See *Setting Speed Control* section to increase draft.

If increasing speed ratio does not eliminate problem, increase dry hot air flow to Feed Ramp to help convey cotton toward Steamroller.

Condenser drum may be turning too slow resulting in a very thick, slow-moving batt. Keep condenser drum surface speed above 250 feet per minute.

Check that the Cotton Inlet Rotor is adjusted correctly. Refer to *Cotton Inlet Rotor Adjustment* section of this manual.

Refer to *Cleaning and Maintenance* section for cleaning tips.

Check that Feed Apron slide from condenser to Steamroller is free from tags, lint hairing and is smooth.

Check that very little moist air is escaping up Feed Ramp where cotton enters Steamroller. If air is coming up here and the Cotton Inlet Rotor is adjusted correctly, check for blockage in exhaust air pipe or fan. A little extra exhaust air pull may be required.

Increase the air flow to the FEED RAMP WARMER PAN.

## SYMPTOMS

Moist air is escaping up Feed Apron and Ramp. Apron and Ramp feel damp and a thin layer of cotton (hairing) forms on these surfaces increasing friction.

Screen Drum hairs over.

Wads form on ends of Screen Drum or Rollers.

## SOLUTIONS

Check that Steamroller exhaust air pipe is clear.

Check that all Steamroller clean-out doors are closed, and flashings are in good shape.

Check slide gate valve positions on moist air and exhaust air pipes. If valves have been moved, re-check air flows. See *Startup & Adjustments* section for air flow settings.

Check for severe hairing of Screen Drum blocking exhaust air flow.

Re-check surface speeds of condenser drum and Steamroller Screen Drum. Screen Drum surface speed should be only 3 to 5% faster than condenser drum surface speed. A higher speed difference can cause hairing.

Check that the Roller Flashings are sealing well onto both the doffer and compression rollers. Outside air that leaks in between the roller and the flashing will cool the drum screen resulting in moisture condensing in the screen. This will lead to hairing.

If adequate moisture levels are obtained in bales, try raising the Humidaire Unit air temperature. The greater the difference between air and water temperatures, the lower the relative humidity and less moisture. Refer to Humidaire Unit Manual for more information on setting air and water temperatures.

Check condition of the Drum Warmer Flashing and that the air pathways are free.

Check condition of Drum Flashing Assemblies and replace if worn or warped.

Check condition of Roller End Washers and replace if worn.

Check condition of Drum End Wiper Blocks and replace if worn.

Check that dry hot air is flowing through the hot air pans on the sides of the housing and into the housing ends of the Screen Drum. Wads in the pan can block the flow of hot air.

## **Suggested Spare Parts**

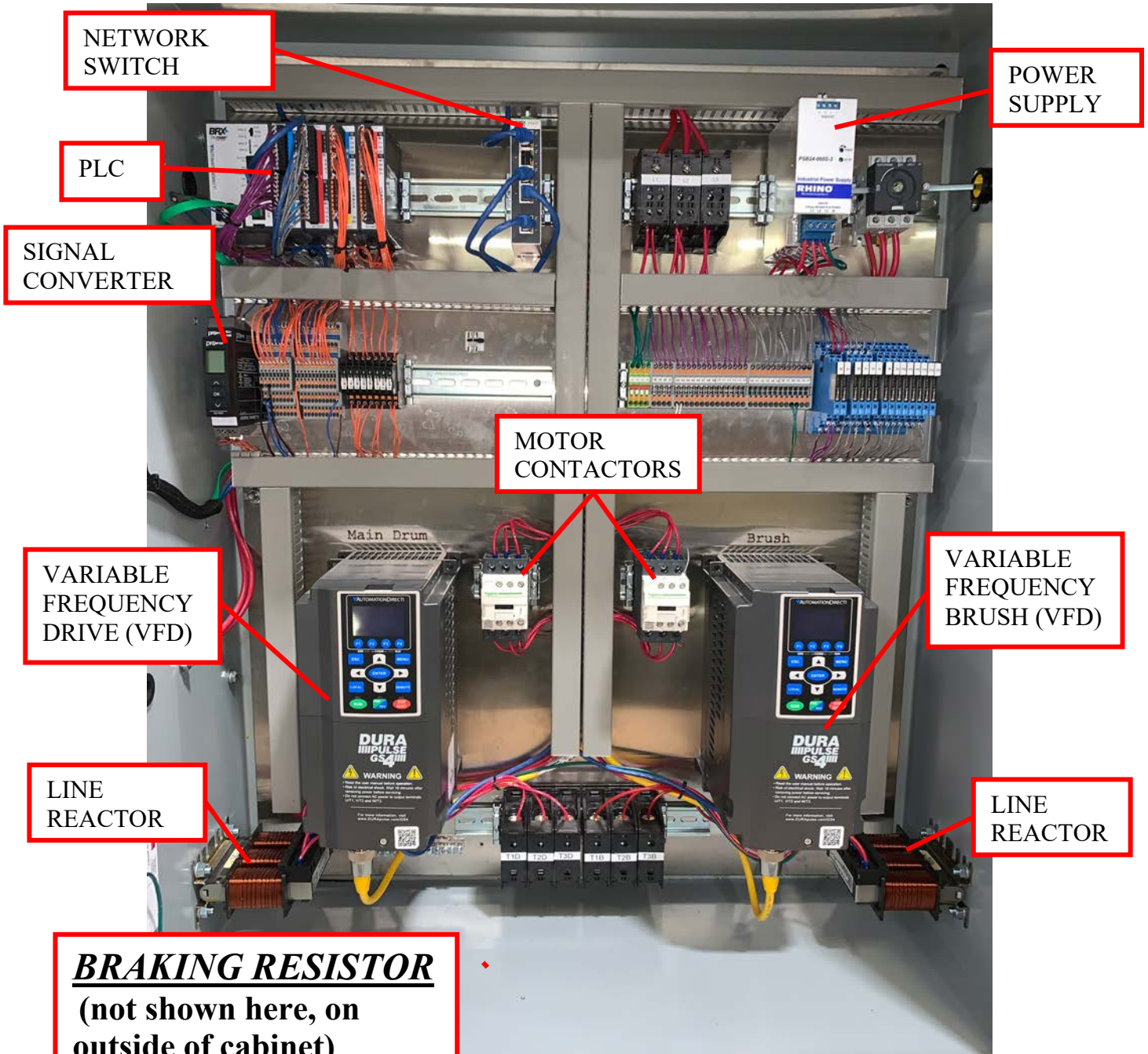
Following is a list of suggested spare parts to keep on hand. If desired, one part number may be used to purchase all items listed in the table. (Part Number: 81705)

<b>Quantity</b>	<b>Part Number</b>	<b>Description</b>
4	22440A	1 INCH BORE TB-SXR-100 TAPPED BASE PILLOW BLOCK BEARING
4	25600B	TAPPED BASE PILLOW BLOCK BEARING, 1 3/4 INCH BORE
2	20690	KEYLESS BUSHING, 1 3/4 INCH BORE
1	22445	5 HP MOTOR
1	22696	SF 1 INCH BORE QD BUSHING
1	22697	2B 6.6 SDS COMB QD SHEAVE
1	22699	2B 5.6 SDS COMB QD SHEAVE
2	22700	BX 68 BELT
4	23640	DOFFER ROLLER END W ASHER, 1/2 INCH - BLACK DELRIN
2	23258A	DRUM END UHMW WIPER BLOCK
1	23038C	DRUM FLASHING ASSEMBLY - LEFT HAND
1	23039C	DRUM FLASHING ASSEMBLY - RIGHT HAND
4	23034A	PLASTIC GLASS ACCESS PANEL
72	15917	1/4 SS LOCK W ASHER
56	15749	1/4 UNC X 1/2 ROUND HEAD SLOTTED STOVE BOLT, SS
16	15803	1/4 UNC X 5/8 ROUND HEAD SLOTTED STOVE BOLT, SS
1	23218	AIR SKIRT
2	23023B	ROLLER FLASHING ASSEMBLY
1	22544B	DRUM WARMER FLASHING
1	22615	INLET ROTOR FLASHING
1	22549B	FRONT FLASHING STRIP
1	19127	PRESSURE GAGE 0-60 PSI
1	20240A	PRECISION AIR REGULATOR
6	23067	DRUM WIPER BRUSH
2	22903A	UHMW BEARING FOR 1 DIA SHAFT

# Steamroller Component Locations

## 81876 Control Cabinet

(Refer to Component List for part numbers and descriptions.)



COLOR TOUCH PANEL





## Resetting a VFD

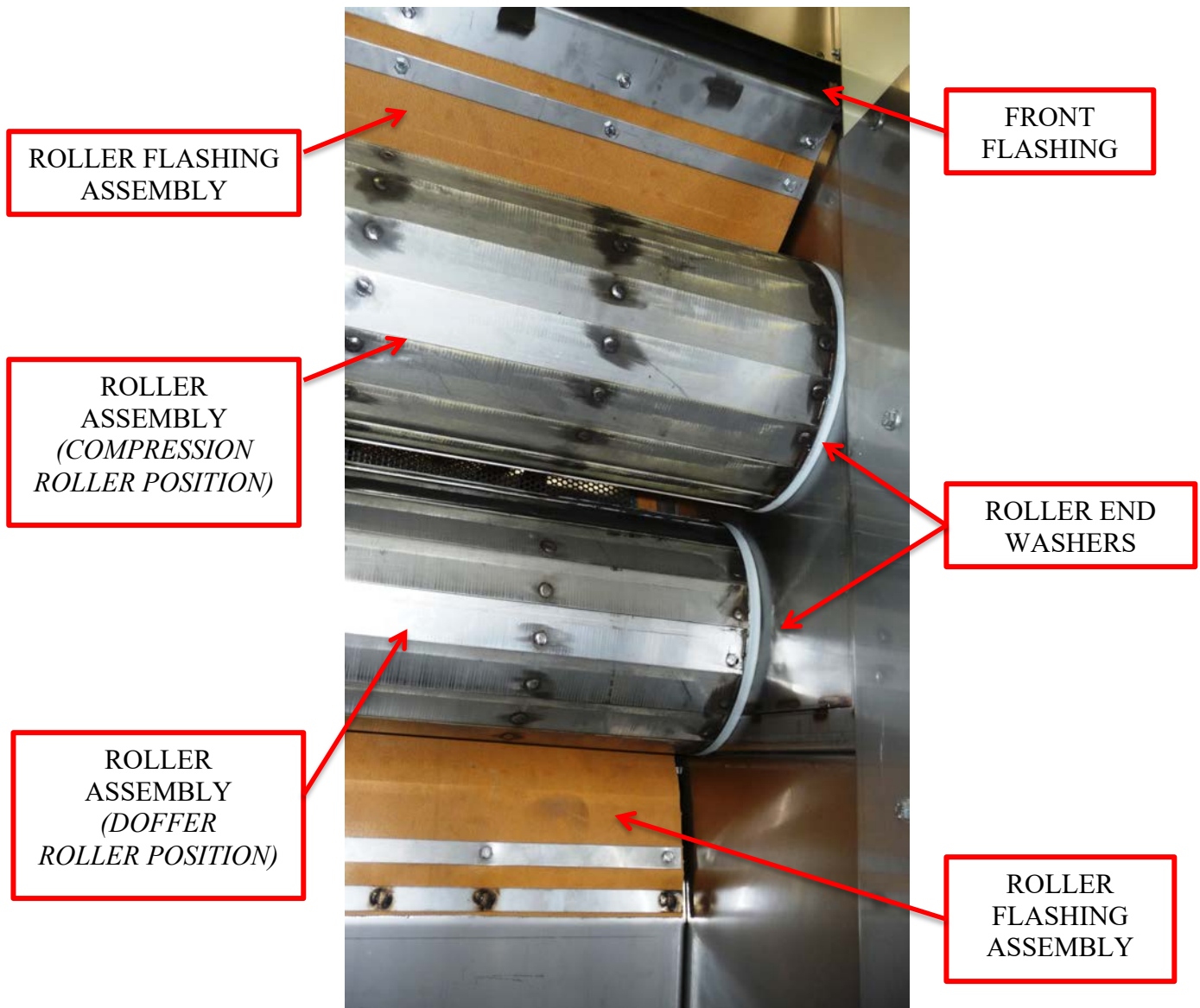
1. Power on the Steamroller control panel.
2. MENU > **1:Param Setup** > **09:Communication** > **9.06 Parameter Copy** > **1** > ENTER
3. MENU > **6:Copy Param** > **001:BLANK** > **1:Keypad->VFD** > ENTER
4. MENU > **1:Param Setup** > **09:Communication** > **9.52 IP Address Octet 4** > Make sure this is **72**.
5. MENU > **1:Param Setup** > **09:Communication** > **9.64 Comm Card External Set** > **2** > ENTER
6. Follow instructions in “Replacing a VFD”

## Replacing a VFD

1. Power off the Steamroller control panel and install the new VFD.
2. Ensure all cables are connected to the VFD.
3. Power on the Steamroller control panel.
4. If prompted that the VFD can't be found, check ethernet connections and press “Connect”.

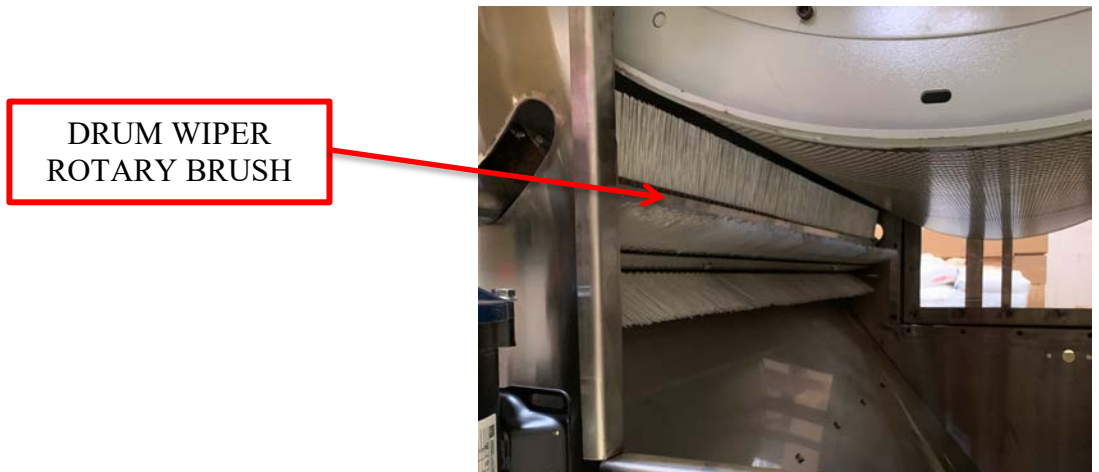
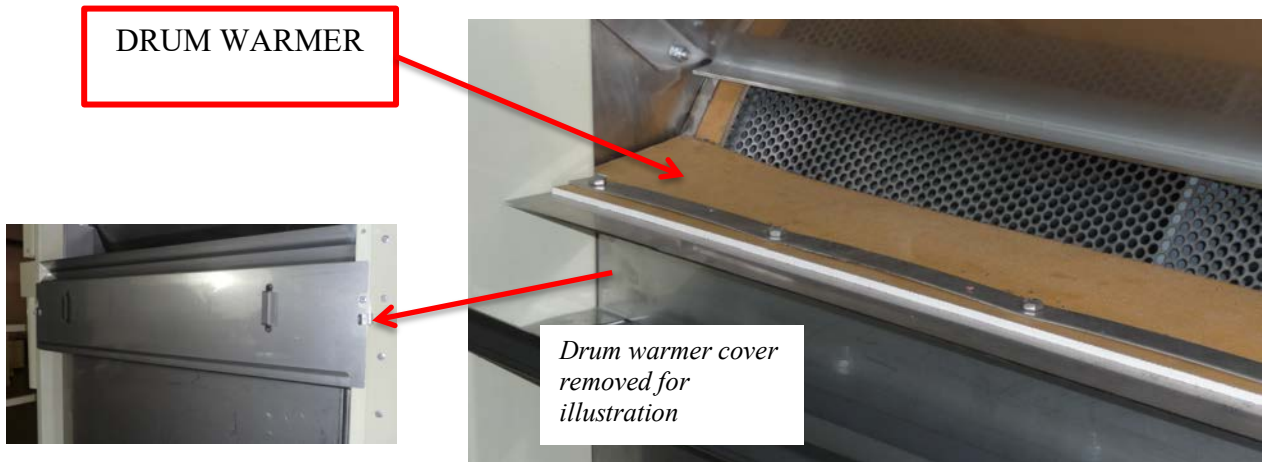
## Compression and Doffer Rollers, Roller Flashings and End Washers

(Refer to Component List for part numbers and descriptions.)



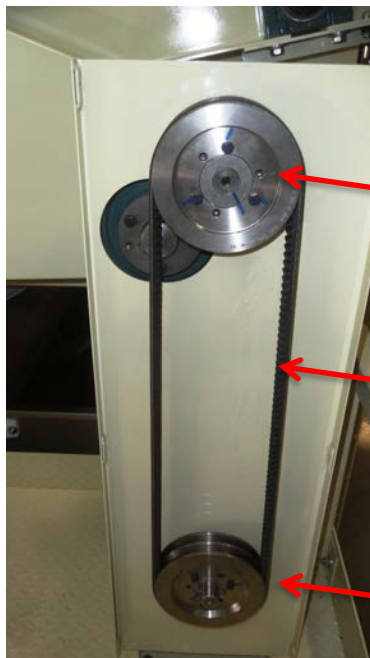
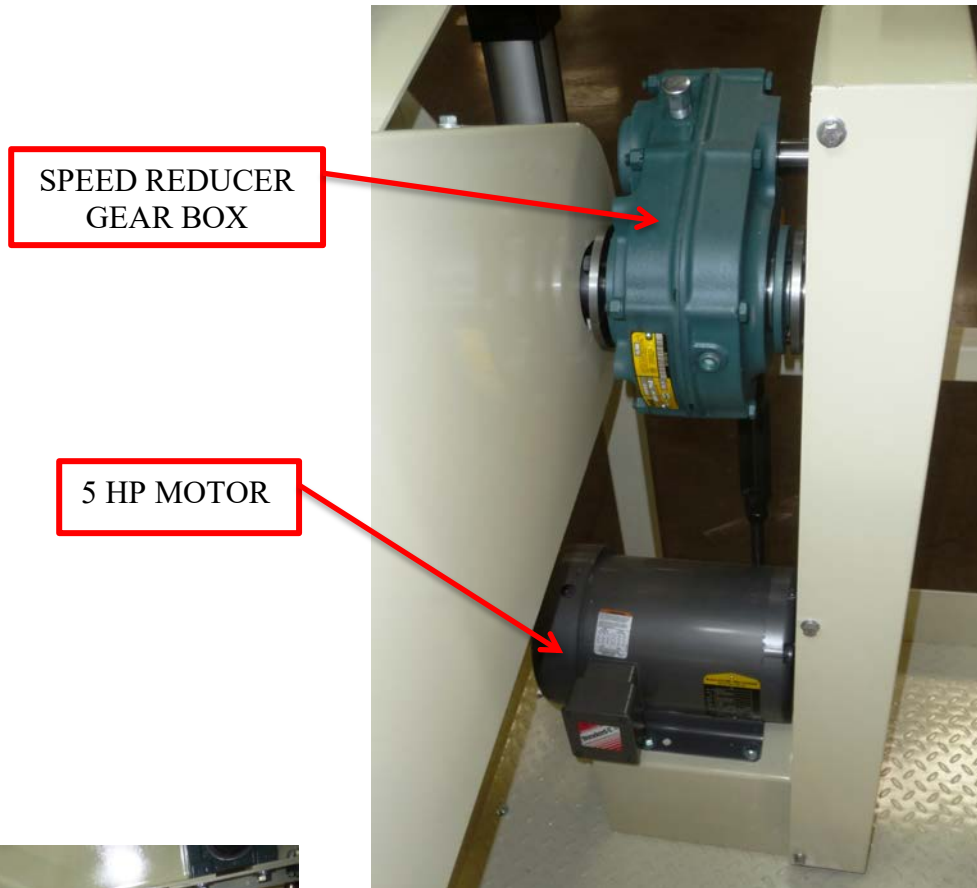
## Drum Warmer and Inlet Rotor Flashings and Drum Wiper Brush

(Refer to Component List for part numbers and descriptions)



## Drive Train

(Refer to Component List for part numbers and descriptions)



SPEED REDUCER SHEAVE, 2B 5.6

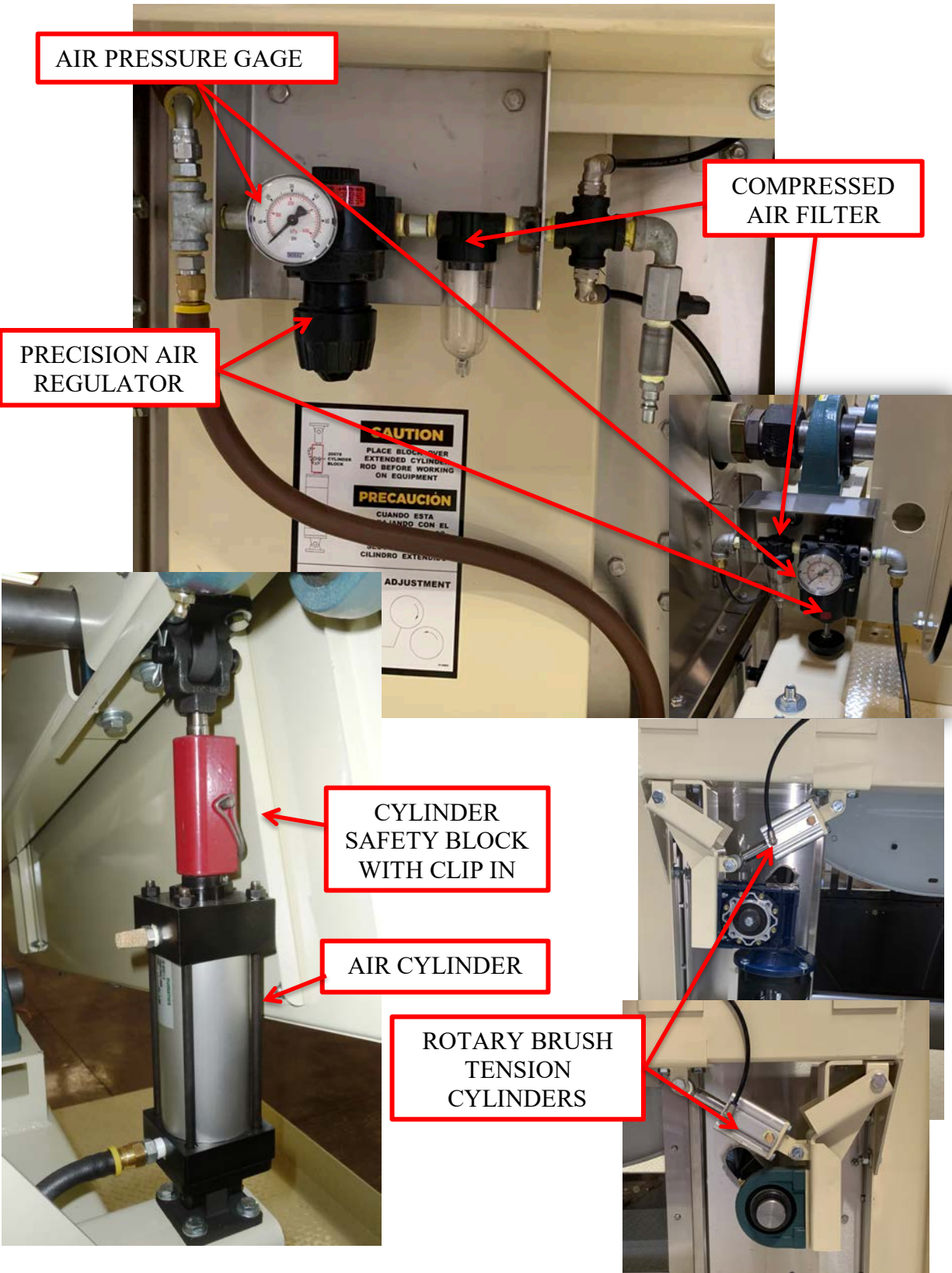
V-BELTS, BX 68

MOTOR SHEAVE, 2B 6.6

*Drive guard removed for  
illustration – do not operate  
without guard in place.*

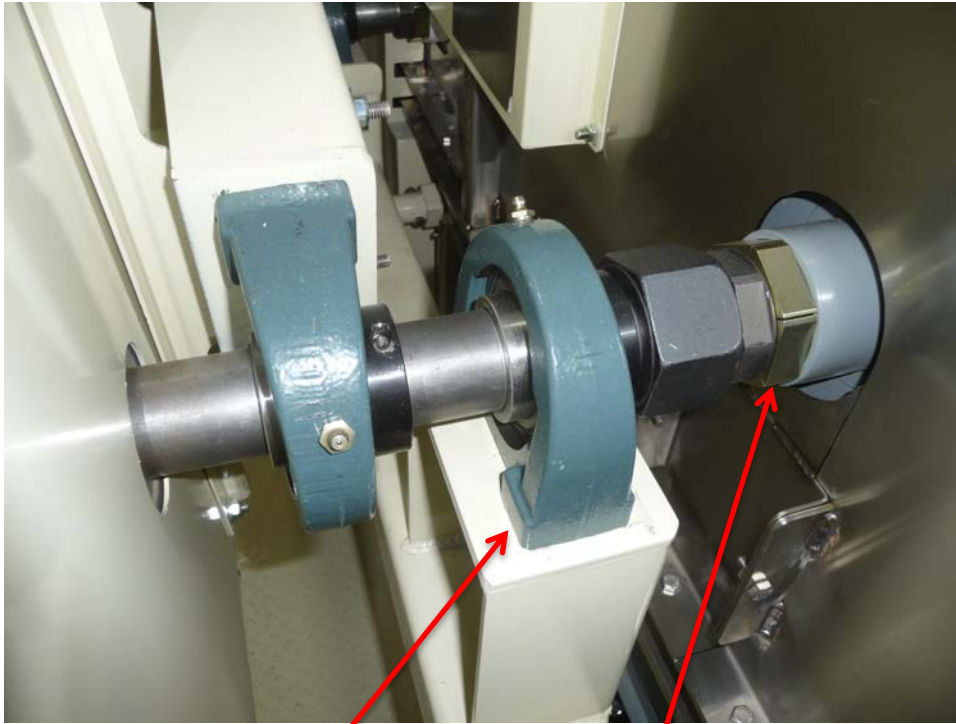
# Pneumatics

(Refer to Component List for part numbers and descriptions)



## Bearings and Keyless Bushings

(Refer to Component List for part numbers and descriptions)



BEARING  
1 3/4 INCH BORE

KEYLESS BUSHING  
1 3/4 INCH BORE

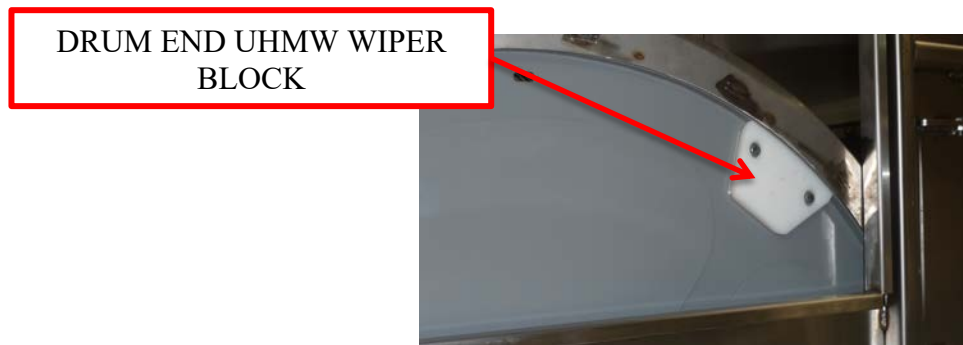
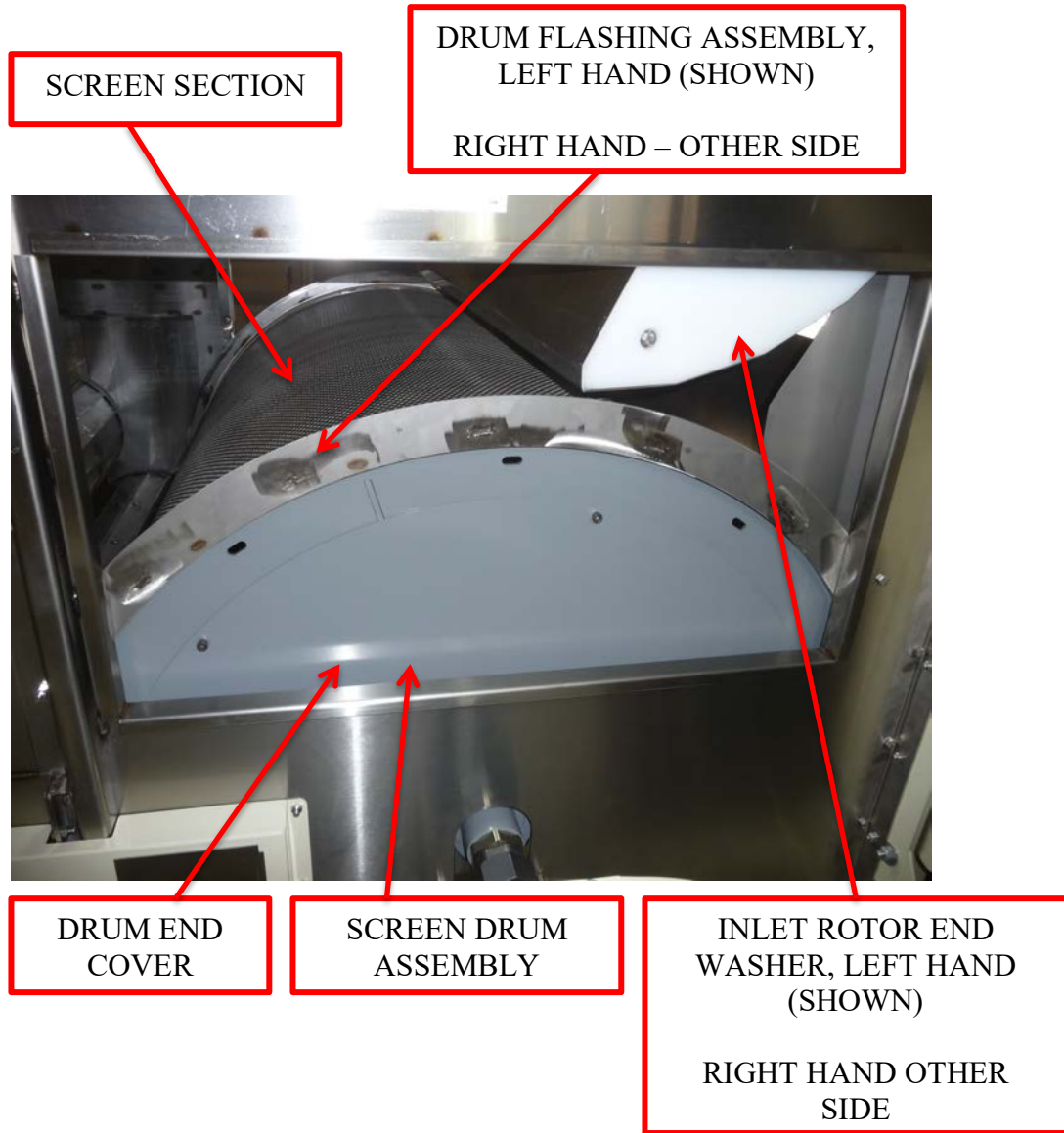
COMPRESSION ROLLER SHAFT

BEARING – 1 INCH BORE



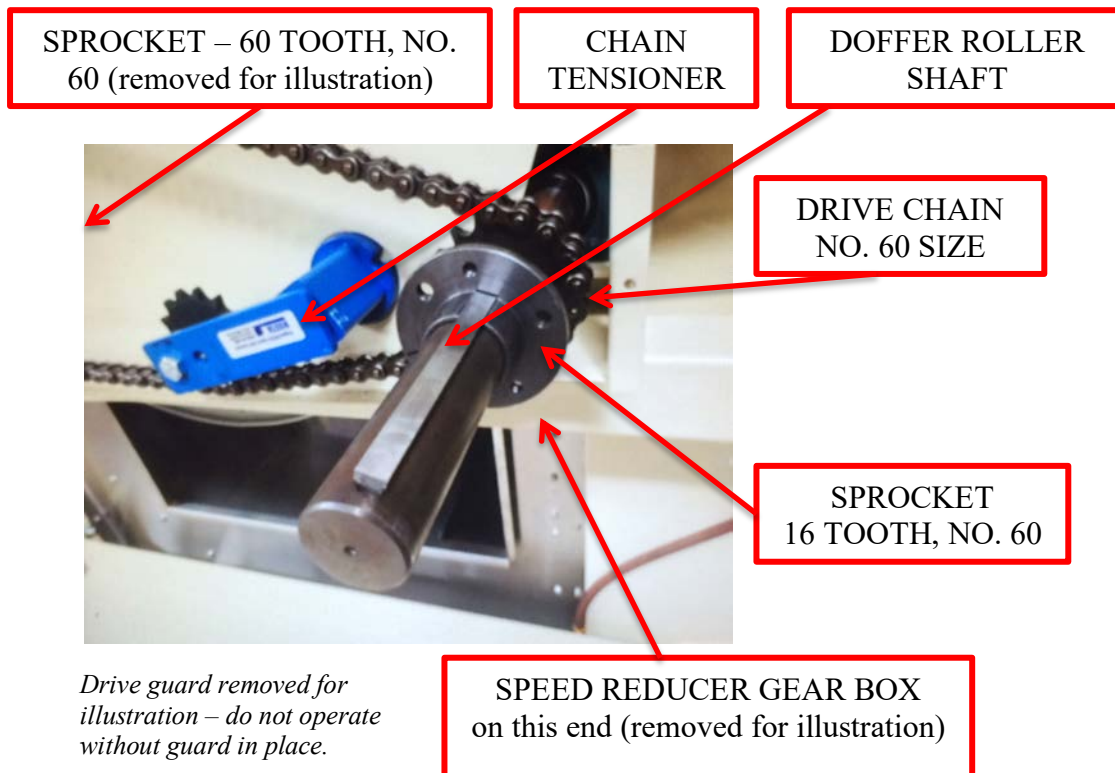
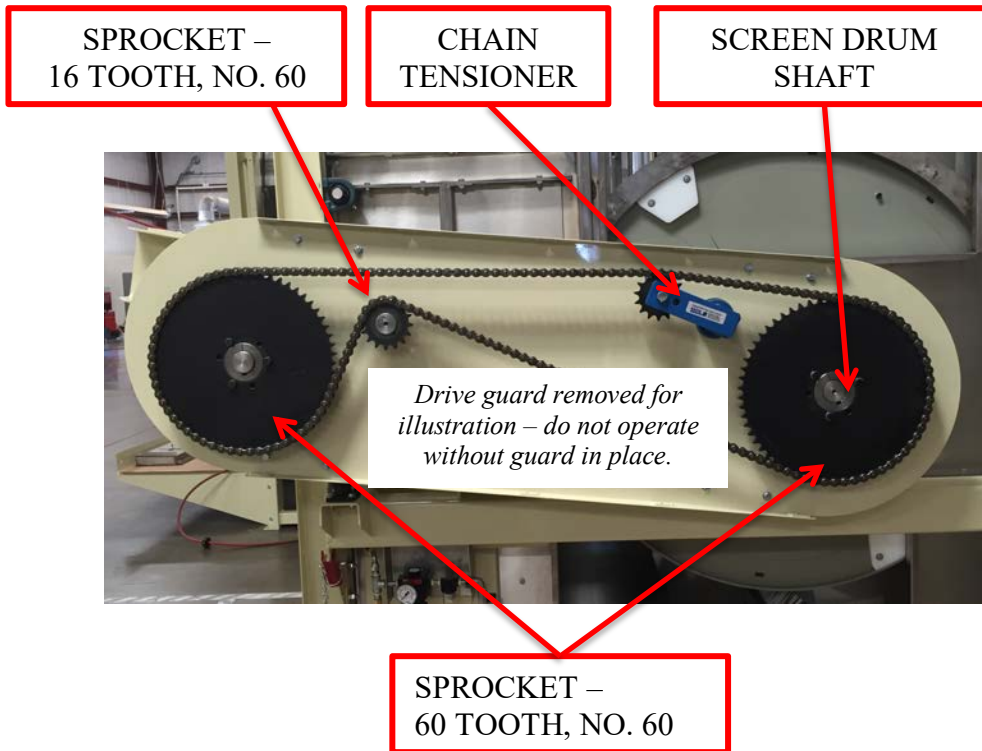
## Screen Drum, Screens and Drum Flashings

(Refer to Component List for part numbers and descriptions)



## Drives and Shafts

(Refer to Component List for part numbers and descriptions)





## Access Doors and Inlet Rotor Air Skirt

(Refer to Component List for part numbers and descriptions)

ACCESS DOOR ASSEMBLY  
WITH WINDOW



PLASTIC GLASS ACCESS PANEL



INLET ROTOR AIR  
SKIRT

## *Steamroller 3 Component List*

<u>PART NAME, NUMBER, MFR'S TYPE</u>	<u>LOCATION</u>
ACCESS DOOR ASSEMBLY WITH WINDOW 23030, SJI	BODY
AIR CYLINDER 20015A, 2 ½ BORE X 4 STROKE	BODY
AIR PRESSURE GAGE 19127, 0-60 PSI	AIR PANEL
BEARING – 1 INCH BORE 22440A, TB-SXR-100	VARIOUS
BEARING – 1 ¾ INCH BORE 25600B, TB-SXR-112	SHAFTS
BRAKING RESISTOR (FOR VFD) 26613, 42 OHM, 1500 WATT	CONTROL CABINET
CHAIN TENSIONER 25276, ROSTA SE 27 TENSIONER	SHAFTS
COLOR TOUCH PANEL 26288, EA9-T10WCL 10IN	CONTROL CABINET DOOR
COMPRESSED AIR FILTER 13593A, F07-200-MITA	AIR PANEL
COMPRESSION ROLLER SHAFT 22499B, 1 3/4 INCH DIAMETER X 83 1/2, SJI	COMPRESSION ROLLER
CYLINDER SAFETY BLOCK WITH CLIP PIN 20078, SJI	BODY
DOFFER ROLLER SHAFT 22500A, 1 3/4 INCH DIAMETER X 87 LENGTH, SJI	DOFFER ROLLER
DRIVE CHAIN 15683, NO. 60 RIVETED CHAIN	SHAFTS
DRUM END COVER 19724, SJI	SCREEN DRUM
DRUM END UHMW WIPER BLOCK 23258A, SJI	DRUM END
DRUM FLASHING ASSEMBLY, LEFT HAND 23038C, SJI	BODY
DRUM FLASHING ASSEMBLY, RIGHT HAND 23039C, SJI	BODY

<u>PART NAME, NUMBER, MFR'S TYPE</u>	<u>LOCATION</u>
DRUM WARMER FLASHING 22544C, 6 X 55 ½	BODY
DRUM WIPER BRUSH 23067, SJI	BODY
5 HP MOTOR 22445, M3615T, 184T FRAME	DRIVE TRAIN
FRONT FLASHING 22549B, 4 ½ X 55 1/2	BODY
INLET ROTOR END WASHER 22607B, LEFT HAND, SJI 23278, RIGHT HAND, SJI	BODY
INLET ROTOR OUTSIDE FLASHING 22615, 2 X 55 ½	BODY
INLET ROTOR AIR SKIRT 23218, 6 X 55 1/2	BODY
KEYLESS BUSHING, 1 ¾ INCH BORE 20690, 6202480	SCREEN DRUM & ROLLERS
LINE REACTOR 21155B, LR2-45P0	CONTROL CABINET
MOTOR CONTACTOR 27004, LC1D25BD	CONTROL CABINET
MOTOR SHEAVE 22697, 2B 6.6 SDS	DRIVE TRAIN
NETWORK SWITCH 23702F	CONTROL CABINET
PLASTIC GLASS ACCESS PANEL 23034A, SJI	ACCESS DOOR
PLC (PROGRAMMABLE LOGIC CONTROL) COMPRISED OF: PLC, 25678, BX-DM1E-M-D BATTERY, 26249, D0-MC-BAT DC INPUT CARD. 25679, BX-16ND3 OUTPUT RELAY CARD, 25680, BX-16TR ANALOG INPUT CARD, 25681, BX-08AD-1 ANALOG OUTPUT CARD, 25682, BX-08DA-1	CONTROL CABINET
POWER SUPPLY 21570B, 3 PHASE VAC TO 24VDC	CONTROL CABINET
PRECISION AIR REGULATOR 20240A, WRA10262	AIR PANEL

<u>PART NAME, NUMBER, MFR'S TYPE</u>	<u>LOCATION</u>
ROLLER ASSEMBLY – COMPRESSION ROLLER POSITION 23022A, SJI	BODY
ROLLER ASSEMBLY – DOFFER ROLLER POSITION 23022A, SJI	BODY
ROLLER END WASHERS 23640, ½ INCH DELRIN	BODY
ROLLER FLASHING ASSEMBLY 23023B, SJI	BODY
SCREEN DRUM ASSEMBLY 19755A, SJI	SCREEN DRUM
SCREEN DRUM SHAFT 22498D, 1 3/4 INCH DIAMETER X 86 LENGTH, SJI	SCREEN DRUM
SCREEN SECTION 20684A, SJI	SCREEN DRUM
SIGNAL CONVERTER 23550A, SCU-1400	CONTROL CABINET
SPEED REDUCER GEAR BOX 22441, TXT215T, 14.10 RATIO	DRIVE TRAIN
SPEED REDUCER SHEAVE 22699, 2B 5.6 SDS	DRIVE TRAIN
SPROCKET – 60 TOOTH, NO. 60 15678, 60 SF 60	BODY
SPROCKET – 16 TOOTH, NO. 60 15672, 60BS16H	BODY
VARIABLE FREQUENCY DRIVE (VFD) 26870, GS4-47P5 (460VAC, 50/60 HZ)	CONTROL CABINET
V-BELTS 22700, BX 68	DRIVE TRAIN
BRUSH MOTOR 26737, Y364	BODY
BRUSH GEARBOX 26736, WGA-50M-010-H1	BODY
BRUSH AIR CYLINDER 26738, 62245K253	BODY

## *Assembly & Installation*

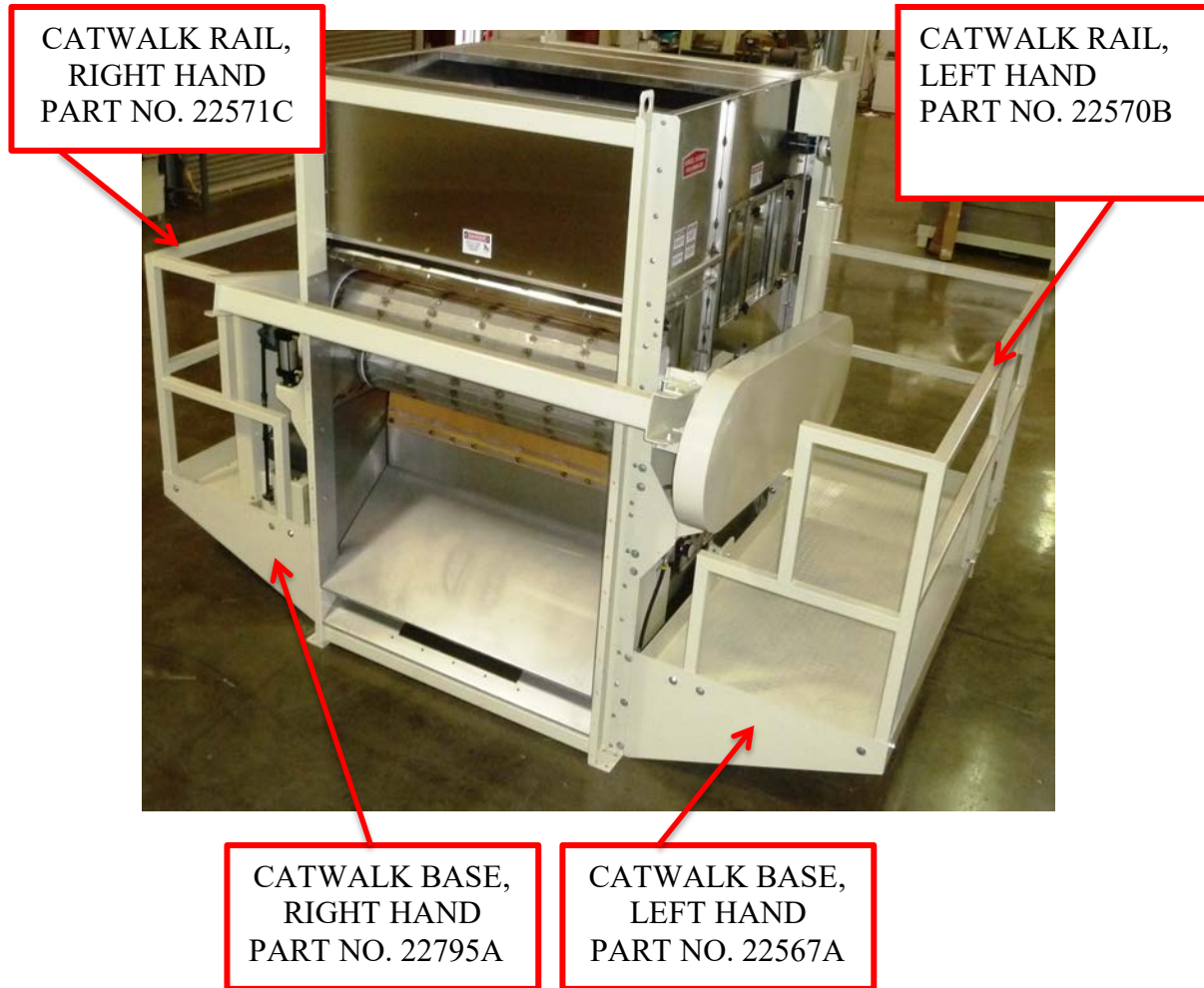
Please take extra precaution and follow all safety rules when gin modifications and equipment installations are occurring.

After taking delivery of the Steamroller System, please take a moment to familiarize yourself with the major parts of the system. The system should arrive with a comprehensive shipping list identifying all the boxes, skids, pallets, etc. The custom lower steel support structure, custom lint slide, sheet metal pipe, fittings and fans may be supplied with the order at the gin's request. The major parts are:

- 81710 STEAMROLLER 3 LINT CONDITIONER ASSEMBLY
- MOTOR, SPEED REDUCER, DRIVES AND MOTOR BASE WITH DRIVE GUARD  
These items may be shipped pre-assembled on right hand side catwalk, or may be packed in a carton depending on method of shipping.
- LEFT, RIGHT AND REAR CATWALK BASES AND SAFETY RAILS.  
The left and right catwalks and rails may be shipped assembled on machine depending on method of shipping.
- 81876 STEAMROLLER CONTROL CABINET
- FEED RAMP WARMER PAN
- \* LINT SLIDE PIECES (if supplied)
- \* LOWER STEEL SUPPORT STRUCTURE ASSEMBLY (if supplied)
- \* 12 INCH HOT AIR PIPE, 12 INCH MOIST AIR PIPE, 16 INCH EXHAUST PIPE (if supplied)
- \* NO. 30 CENTRIFUGAL FAN, 10 HP MOTOR, FOR MOIST AIR (if supplied)
- \* NO. 30 CENTRIFUGAL FAN, 15 HP MOTOR, FOR AIR (if supplied)
- **\* These required items are only supplied if ordered, otherwise they must be supplied by others.**

## Assembly of Catwalks and Motor Base

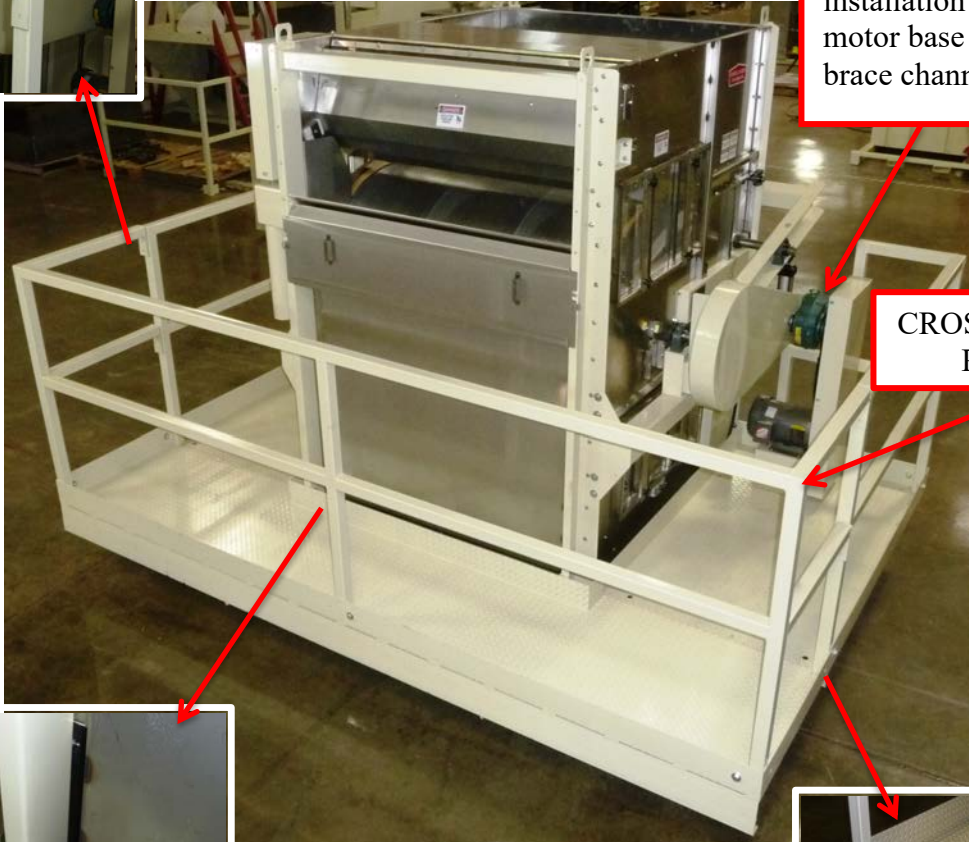
Refer to following pictures for assembly of catwalk bases and catwalk rails. The left and right side catwalks and rails may come pre-assembled on the Steamroller depending on shipping method.



Align handrails then drill matching 3/8 inch holes through 2 X 2 rail tubing. Use 5/16 UNC X 3 bolts with washers and lock nuts.



See next page for installation of motor base and brace channels.

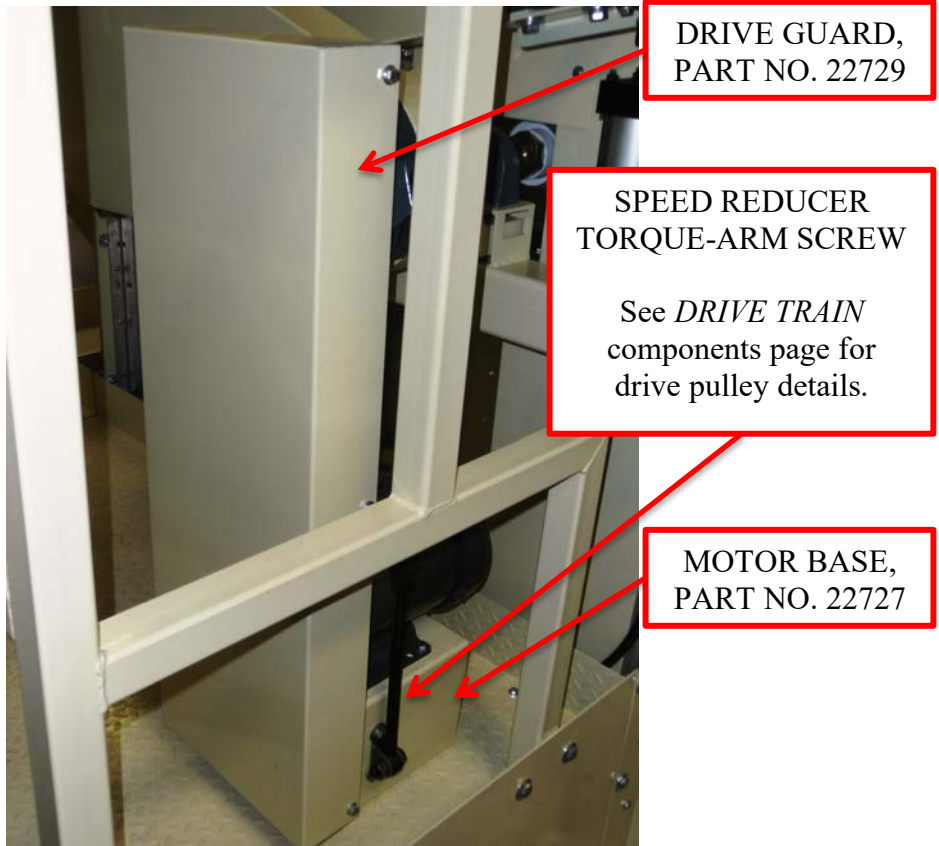


CROSS CATWALK RAIL, PART NO. 23293



Use 1/2 UNC X 1 1/4 bolts with washers and lock nuts here and for connecting rails to bases.

Use 3/8 UNC X 1 1/4 bolts with washers and lock nuts here.



DRIVE GUARD,  
PART NO. 22729

SPEED REDUCER  
TORQUE-ARM SCREW

See *DRIVE TRAIN*  
components page for  
drive pulley details.

MOTOR BASE,  
PART NO. 22727



BRACE CHANNELS,  
PART NO. 22724 go under  
catwalk

Use 5/16 UNC X 1 bolts,  
washers and lock nuts.



## **Installation of Steamroller, Lint Slide and Piping**

Custom installation drawings are supplied by Samuel Jackson, Incorporated and/or the sheet metal supplier for installation of the Steamroller, lint slide, placement of the fans and Humidaire Unit.



*The lower lint slide section should have the angle flange connecting the lint slide to the press pusher/charger cabinet lightly tack welded onto the slide walls. The tack welds are easily broken if minor adjustments need to be made to the overall length of the slide. Weld angle flange to side walls after completing assembly.*

## **Match-up of Steamroller Catwalks to Battery Condenser Catwalks and Ladders**

The gin is responsible for providing the match-up and connections between the battery condenser catwalks and the catwalks provided with the Steamroller. In some instances, the installers will need to make slight modifications to the Steamroller's Catwalk Rails. Battery condenser access ladders may also require relocation to facilitate the installation.

## **Compressed Air Supply**

A source of compressed air is required to operate the air cylinders that support the Compression Roller. The required volume of compressed air is small. The required minimum pressure is 100 psi (6.8 bars). Use a 3/8" steel line to connect air to the pneumatic control panel located on the Steamroller's left side.

## **Electrical Connections**

Refer to the *EXTERNAL ELECTRICAL CONNECTIONS* CA20803A for standard installations.



**Locate the 81876 STEAMROLLER CONTROL CABINET on one of the lower legs of the lower structural steel support assembly. This will keep the 3 phase electrical leads between the CONTROL CABINET and the MOTOR/SPEED REDUCER under 50 feet to avoid potential Variable Frequency Drive (VFD) and motor problems.**

### **Electrical Power Requirements**

- **3 PHASE POWER.** (480VAC 60HZ, 415VAC 50HZ, 380VAC 50HZ normal voltages and frequencies). 30-amp breaker. Connect power to non-fusible disconnect supplied on side of 20225B Control Cabinet. Consult factory if different voltage is available (i.e. 230VAC 50/60HZ).
- 
- **24VDC POWER.** A *POWER SUPPLY* is supplied in the Control Cabinet to provide 24VDC power for the PLC and the Motor Contactor (MC). The 3 phase power supplies power to the *POWER SUPPLY*.

### **Steamroller Speed Control**

A Variable Frequency Drive (VFD) is supplied with each Steamroller system to allow a fine offset match of the surface speed of the Steamroller's Screen Drum to the battery condenser screen drum. At system commissioning, this speed matching will be set.

In gins where the battery condenser's drum speed is adjustable (whether through a speed potentiometer or an automatic scheme based on number of gin stands operating), the Steamroller's VFD must be able to track this speed change. The battery condenser's variable frequency drive must provide a suitable output control signal based on output frequency for the Steamroller to follow. Terminals for the speed signal are shown on the *EXTERNAL ELECTRICAL CONNECTIONS* diagram CA20803A. Suitable types of speed reference signals are shown on this diagram.

## Start/Stop Control of the Steamroller

The installing electrician is responsible for providing a signal to terminals 18 and 19 shown as “STEAMROLLER RUN” on the *EXTERNAL ELECTRICAL CONNECTIONS* diagram. If the red jumpers remain this will act as a maintained run signal.

If the red jumpers are removed this will act as a momentary run and will require a maintained signal on 20 and 21 which will be the momentary STOP signal, where momentary loss of this signal will stop the Steamroller.

Some gins prefer to have the Steamroller automatically start when the battery condenser starts. The signal may come from interposing a relay from the battery condenser run light or using a set of normally open auxiliary contacts on the battery condenser motor starter. The Steamroller should start a few seconds before the condenser to be able to clear cotton that may come from the condenser at startup.

## Run Indicator Signal

A “STEAMROLLER RUN STATUS” signal is provided for optional use to indicate that the Steamroller is running. The Steamroller’s PLC maintains a “dry contact” closure between terminals 10 and 11 while the VFD is reporting to the PLC that it is in run mode. Use of this signal is encouraged to minimize lint system chokes if the Steamroller stops due to a VFD fault.



*Some gins treat the RUN INDICATOR signal the same as the low air pressure switch signal on the lint flue riser. If the Steamroller stops running, all the gin stand breasts come out and cotton feed is stopped.*

## Moist Air Thermocouple

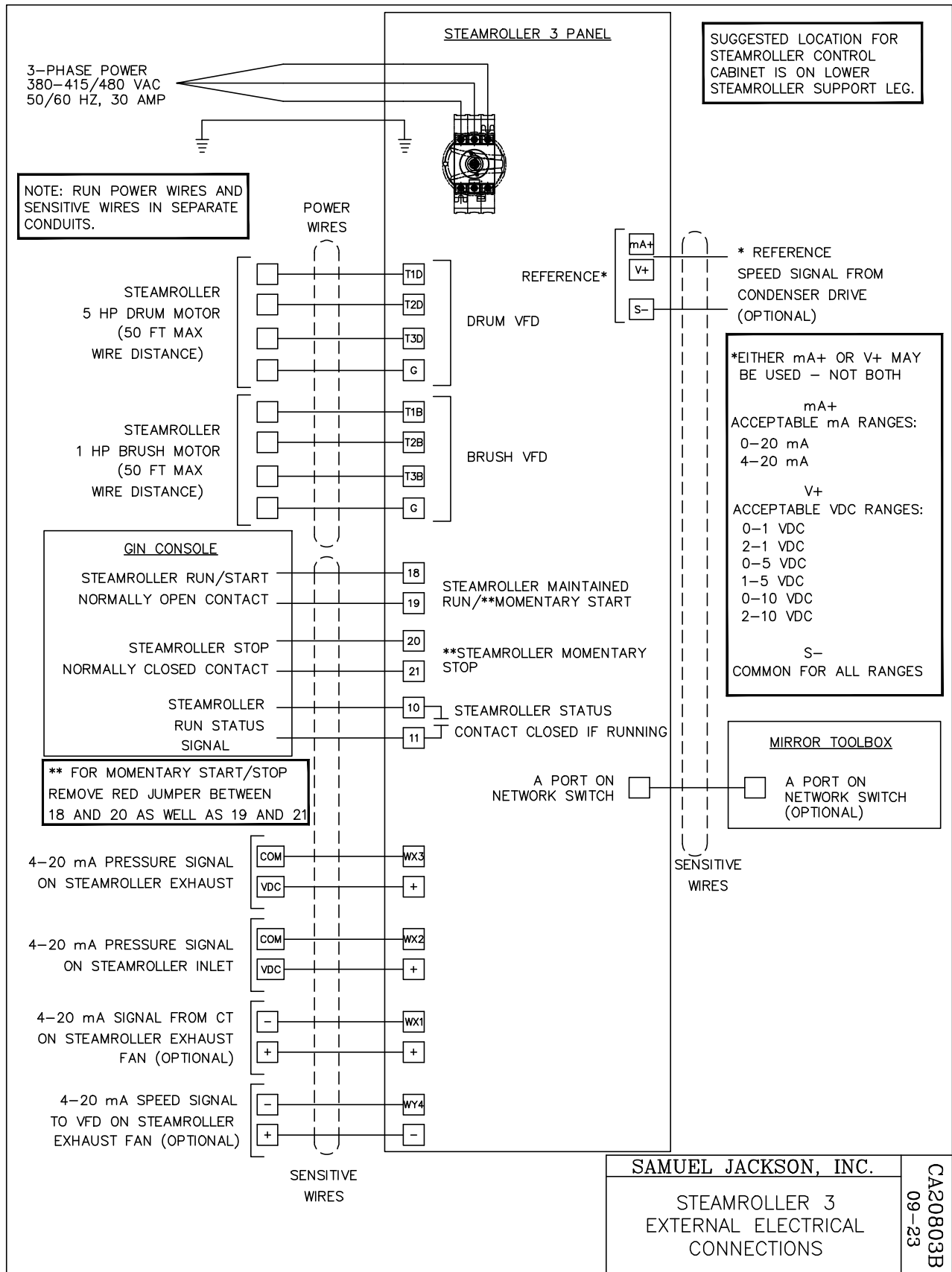
A moist air thermocouple is supplied with the Humidaire Unit. For Steamroller systems, locate this thermocouple in the 12-inch diameter moist air pipe just before the transition at the top of the Steamroller’s moist air plenum chamber.

The thermocouple connection wire can be run with other sensitive wires but not with power wires. Refer to the Humidaire Unit’s service manual for additional wiring information.

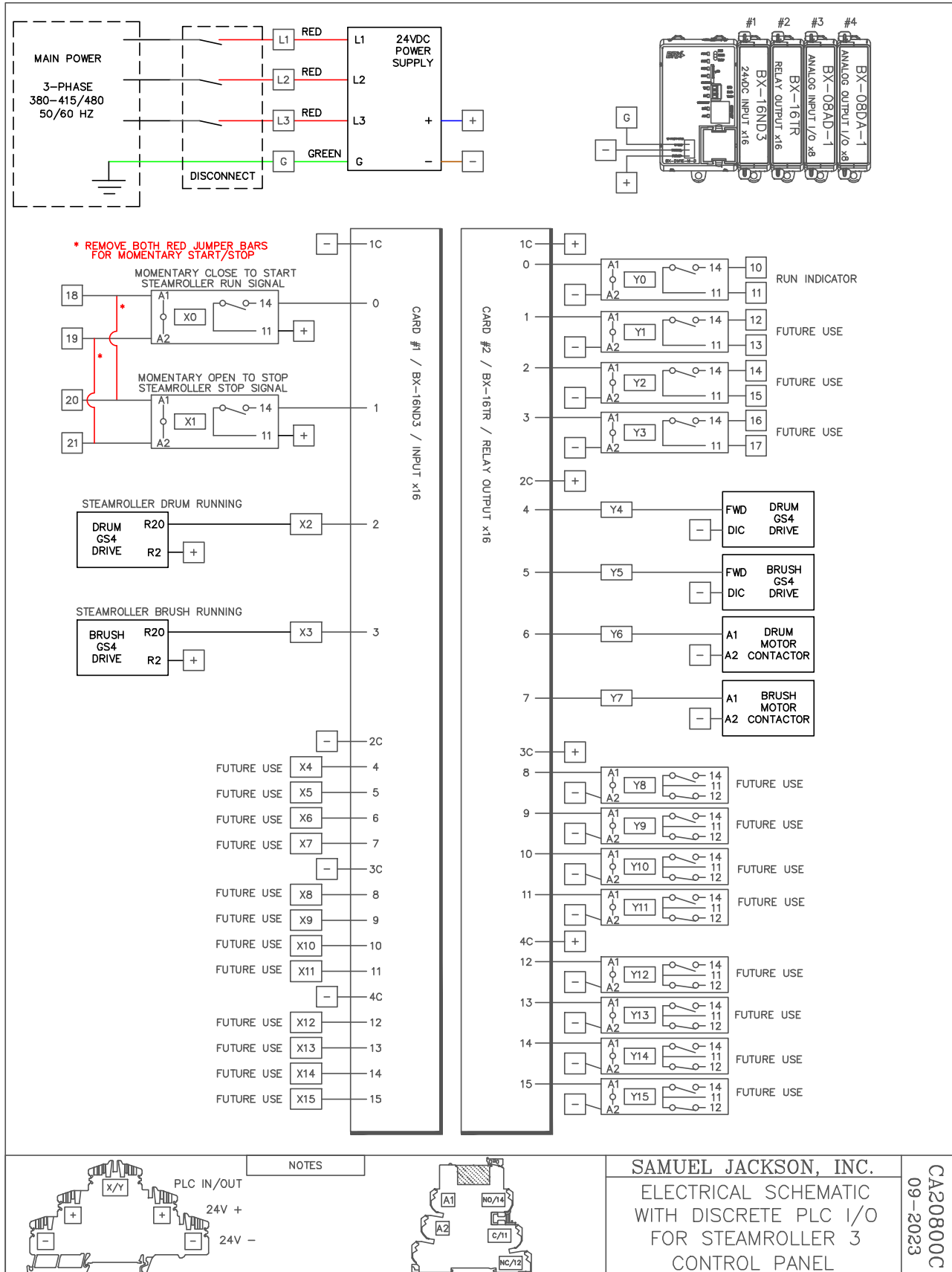
## Inlet and Outlet Air Transducers

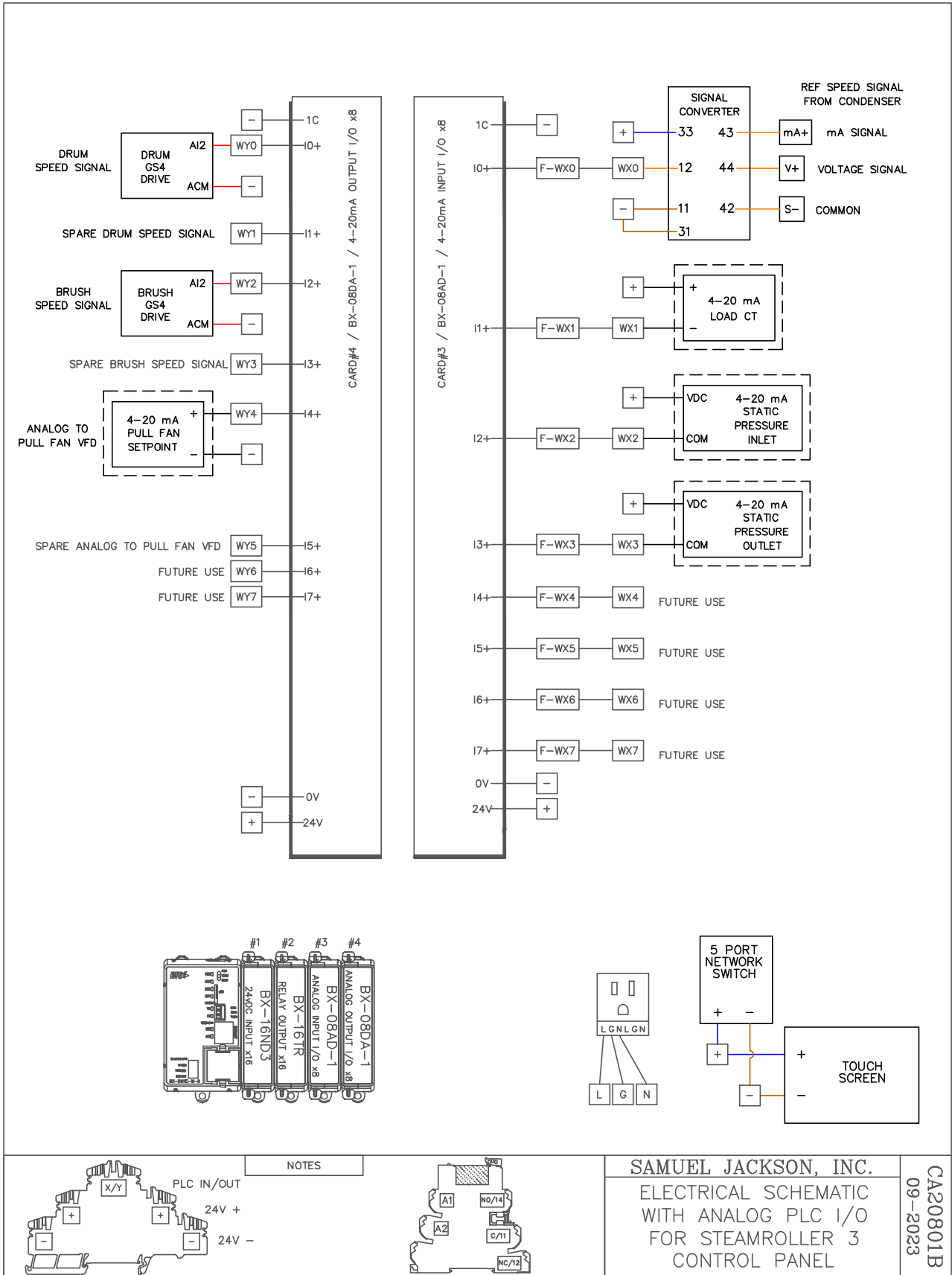
The Inlet and Outlet air transducers ports should be mounted just before the inlet transition and just after the outlet transition respectively. The transducers should be mounted nearby their respective ports. These sensors assist with initial setup and future troubleshooting of the Steamroller air system.

# External Electrical Connections for Steamroller 3



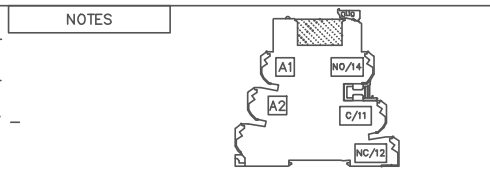
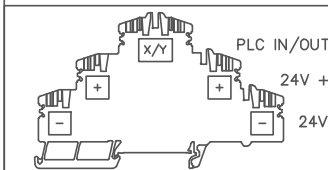
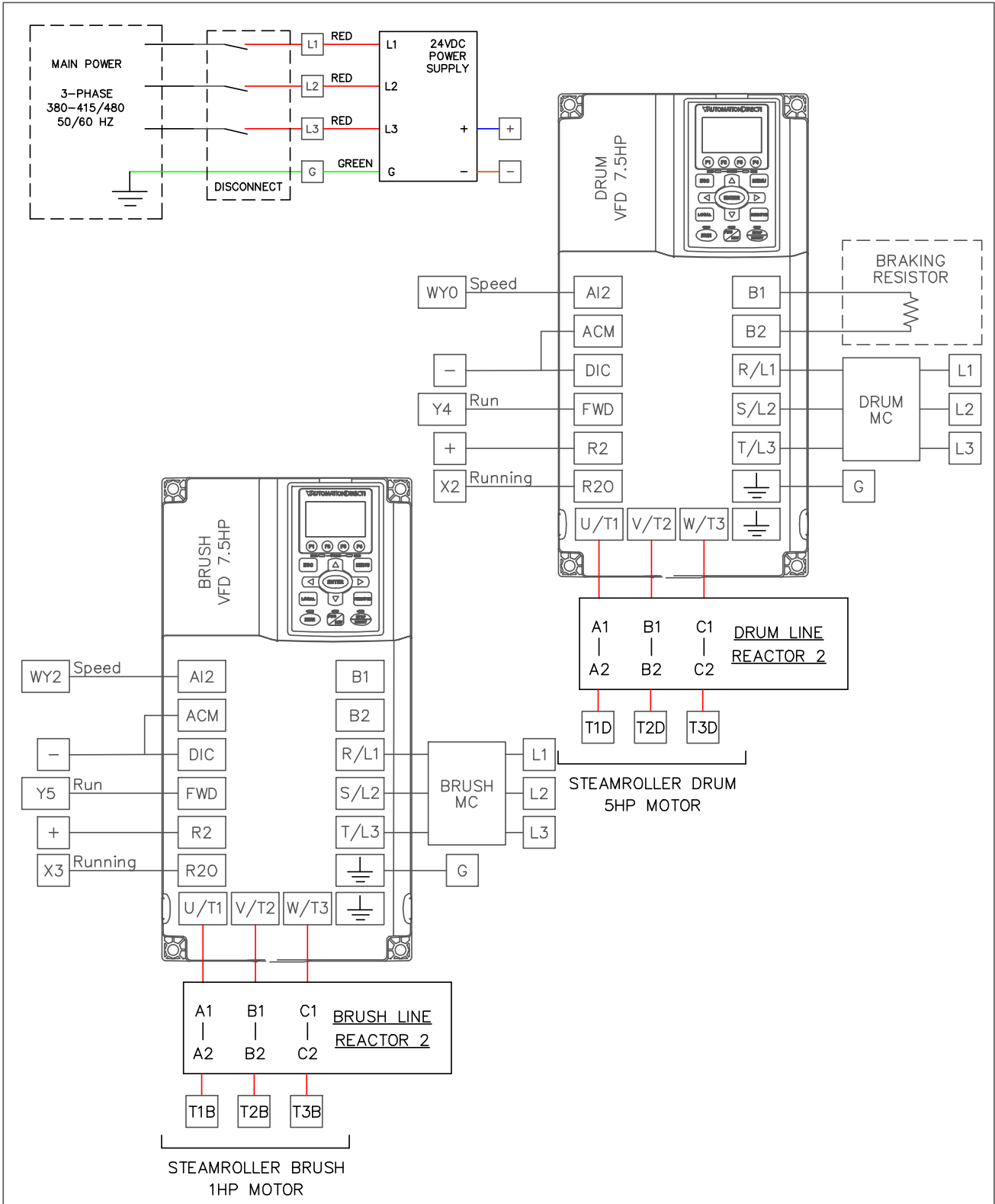
# Electrical Schematic for 81876 Control Panel





**SAMUEL JACKSON, INC.**  
 ELECTRICAL SCHEMATIC  
 WITH ANALOG PLC I/O  
 FOR STEAMROLLER 3  
 CONTROL PANEL

CA20801B  
 09-2023



SAMUEL JACKSON, INC.  
ELECTRICAL SCHEMATIC  
DRUM & BRUSH VFD  
FOR STEAMROLLER 3  
CONTROL PANEL

CA20802C  
09-2023

# Warranty and Safety Notices

## LIMITED WARRANTY

### SAMUEL JACKSON, INCORPORATED

For Commercial and Industrial Customers of Samuel Jackson Moisture Control Products

**SAMUEL JACKSON, INCORPORATED** ("Sam Jackson") warrants to its customers who purchase Sam Jackson products that its equipment is free from defects in material and workmanship under normal use and service for 12 months from the date of shipment from its Lubbock, Texas factory.

**THIS WARRANTY DOES NOT EXTEND TO EQUIPMENT SUBJECTED TO MISUSE, NEGLIGENCE, OR ACCIDENT; NOR DOES THIS WARRANTY APPLY UNLESS THE PRODUCT COVERED BY IT IS PROPERLY INSTALLED BY A QUALIFIED, COMPETENT TECHNICIAN, WHO IS LICENSED WHERE STATE AND LOCAL CODES REQUIRE, AND WHO IS EXPERIENCED IN MAKING SUCH INSTALLATIONS.**

Equipment, which is defective in material or workmanship and within the warranty period, will be repaired or replaced, at Sam Jackson's option, in order to facilitate proper operation.

**THIS WARRANTY IS LIMITED TO THE PRECISE TERMS SET FORTH ABOVE, AND PROVIDES EXCLUSIVE REMEDIES EXPRESSLY IN LIEU OF ALL OTHER REMEDIES, AND IN PARTICULAR THERE SHALL BE EXCLUDED THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. IN NO EVENT WILL SAM JACKSON BE LIABLE FOR ANY INCIDENTAL OR CONSEQUENTIAL DAMAGE OF ANY NATURE.**

Sam Jackson neither assumes nor authorizes any person to assume for Sam Jackson any other liability or obligation in connection with the sale of this equipment, Sam Jackson's liability and Customer's exclusive remedy being limited to repair or replacement as set forth above.

**SAMUEL JACKSON, INCORPORATED**  
3900 Upland Avenue Lubbock, Texas 79407



## **IMPORTANT!**

**The following notice affects your warranty.**

### **Electrical Controls and Your Safety**

Your new Sam Jackson product may be equipped with electrical controls or designed to interact with controls on a related Sam Jackson product.

In the event that local, state, federal or other specified safety compliance is required, we will consider modifications to meet the particular requirements. Implementation of alternative safety devices may incur additional charges. No warranty of compliance with a particular standard is made in the absence of specific reference to it in our quotation.

If you modify, or permit others to modify, these controls without specific written permission from Sam Jackson, Inc. the warranty on your product will be void and there is a possibility of serious damage to machinery, damage to product, serious injury to personnel, or death. The modifier of the controls assumes all liability for these consequences.

Samuel Jackson, Incorporated  
3900 Upland Avenue  
Lubbock, Texas 79407  
806-795-5218

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